Honeywell

Excel 50

MMI

USER GUIDE

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ABOUT THIS USER GUIDE

This User Guide describes operation of the Excel 50 MMI for configurable applications with Version 2.05 (or higher) firmware. It focuses on changes in operation with respect to Version 2.04.

Version 2.05 introduces a number of significant software improvements facilitating operation of the MMI. These improvements are essentially as follows:

- The number of keystrokes necessary to access important information and/or to reconfigure applications has been considerably reduced.
- Moving from screen to screen has been simplified.
- The utilization of space in the display screen has been optimized.

Additionally, one important hardware improvement should also be mentioned:

- The display screen has been equipped with back-lighting to enhance readability.

OPERATOR'S TERMINAL

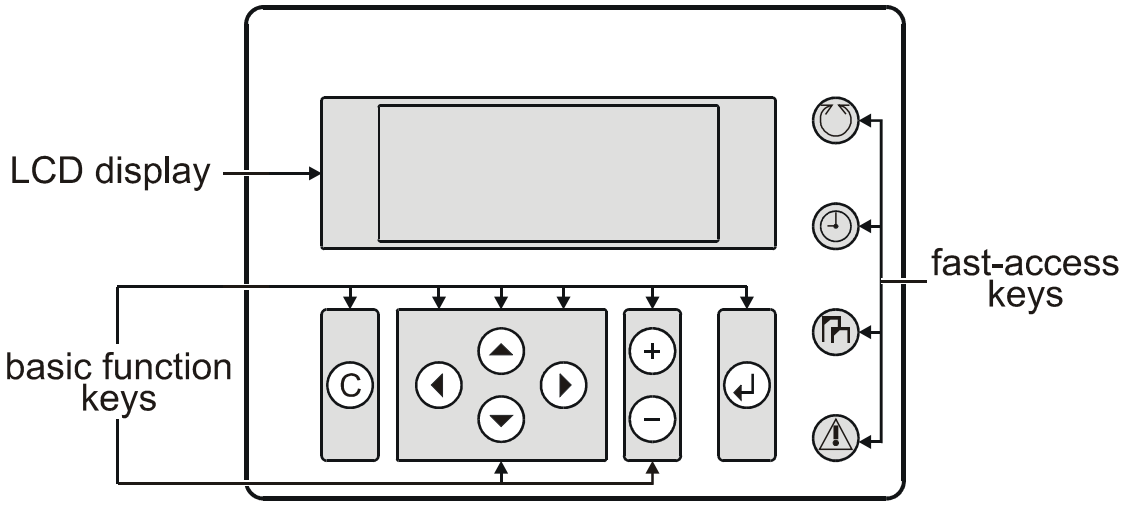

Fig. 1. Excel 50 Man-Machine Interface

The Excel 50 controller's **MMI** (**M**an-**M**achine **I**nterface, see Fig. 1) consists of a keyboard and a display described below.

Keyboard

The keyboard has 8 basic function keys and 4 fast-access keys described below.

Basic Function Keys

The effects of pressing the basic function keys are summarized below.

Ⓒ CANCEL: Enables you to escape to the root screen, to cancel an incorrect entry, or to confirm an alarm message.

UP ARROW: Moves the cursor to the previous field of a screen or, when already at the top of a screen, to the bottom field.

DOWN ARROW: Moves the cursor to the subsequent field of a screen or, when already at the bottom of a screen, to the top field.

RIGHT ARROW: Moves the cursor to the next digit to the right of a field, to the subsequent field, or to the first field of a subsequent screen (equivalent to "page down").

LEFT ARROW: Moves the cursor to the next digit to the left of a field, to the previous field, or to the last field of a previous screen (equivalent to "page up").

PLUS: Increases the displayed numerical value by 1. In the case of a digital state, it changes the state to the opposite state. Increments scroll bar values (i.e. destination screens). Creates new "Daily" or "Annual" schedules.

MINUS: Decreases the displayed numerical value by 1. In the case of a digital state, it changes the state to the opposite state. Decrements scroll bar values (i.e. destination screens). Deletes existent "Daily" or "Annual" schedules.

ENTER: Confirms any changes made or shifts to the subsequent screen.

See also section "Resetting" on page 3.

The effects of pressing the basic function keys differs depending upon whether the current screen contains only display fields, edit fields in the edit mode, edit fields in the display mode, a scrollbar, etc. It also depends upon the procedure you are currently carrying out (e.g. time schedules). See also Table 1 on page 3.

Table 1. Effects of Basic Function Keys

key	screens containing				
	only display fields	**edit fields in display mode**	**edit fields in edit mode**	**a listbox without scrollbar***	**a listbox with scrollbar**
▲	no effect	goes to previous field	increments value	goes to previous field	
+	no effect			no effect, except for time schedules (adds a new schedule)	increments scrollbar value (screen no.)
▼	no effect	goes to next field	decrements value	goes to next field	
−	no effect			no effect, except for time schedules (deletes a schedule)	decrements scrollbar value (screen no.)
◀	goes to previous or stays in same screen		goes to previous digit within field	pages up	
▶	goes to next or stays in same screen		goes to next digit within field	pages down	
C	escapes to root screen		rejects change	escapes to root screen	
↵	no effect	shifts from display to edit mode	confirms value / shifts from edit to display mode	confirms selection	
* Also Plant Components lists, Point Attributes lists, and System Topics submenus					

Resetting

NOTE: A reset has a more-severe impact than simply switching off the device: All RAM data and all configuration codes are ***lost***, and the controller will therefore have to be re-initialized (see "Powering Up / Resetting the Controller" on page 48) in order to work with it. **You should reset your Excel 50 MMI only as a preliminary to downloading a new application.**

▼ & − Simultaneously pressing the DOWN ARROW key and the MINUS key causes a reset.

A reset can also be achieved by pressing the hardware RESET button at the rear of the controller housing under Terminal Block B.

Fast-Access Keys

The use of the fast-access keys is summarized below.

PLANTS: Displays a list of the selected plant components and their current states.

TIME PROGRAMS: Displays a list of configured time programs and provides all time schedule customization options.

SYSTEM TOPICS: Available only in access level 3. Provides system settings and application parameters.

ALARMS: Displays alarm information on alarm history, points currently in an alarm condition, critical alarms, and non-critical alarms.

LCD Display

The LCD display can present four lines of alphanumeric text, with 16 characters per line, and has been provided with back-lighting to improve legibility.

Screen usually contain one or more edit fields and display fields interspersed among its four lines. The **current edit field** is indicated by the presence of a cursor (arrowhead) to the left of it. In the case of edit fields consisting of several digits, the current digit will be flashing. See Fig. 2.

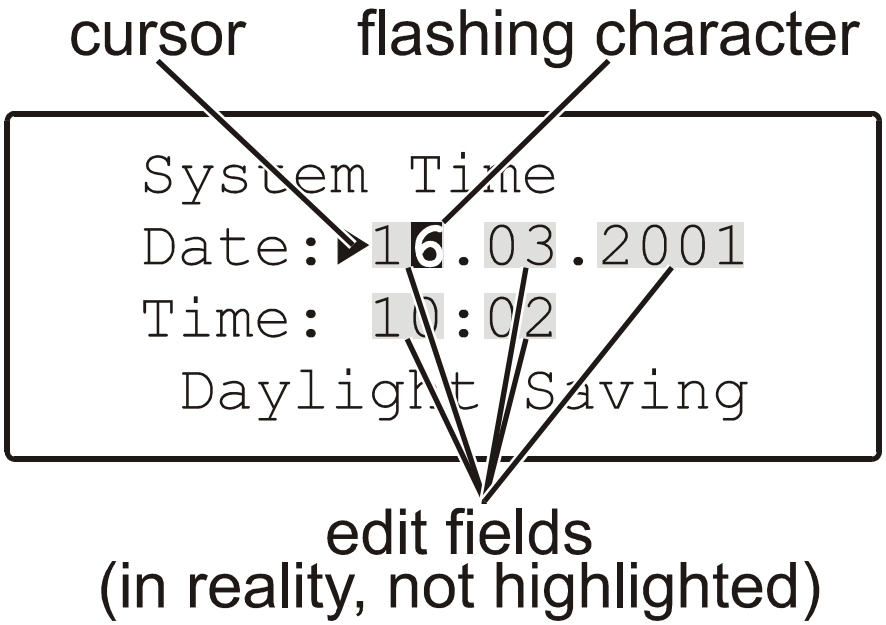

Fig. 2. Typical screen with cursor and edit fields

NOTE: The screens shown in this User Guide are **examples** (taken from application HE01) and may differ slightly from the screens visible on your Excel 50 MMI.

INITIALIZATION AND ENTRY

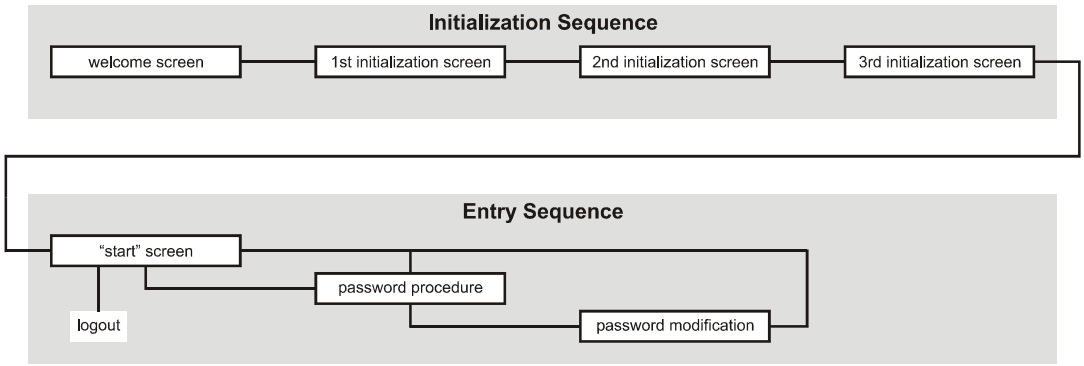

Fig. 3. Initialization and entry sequences

Initialization Sequence

Upon downloading an application into your Excel 50 MMI (see also "Powering Up / Resetting the Controller" on page 48), the initialization sequence will begin. This initialization sequence consists of a series of four screens (see Fig. 3). If the configuration codes are correct, the initialization sequence should be immediately followed by the entry sequence (see section "Entry Sequence" on page 5).

Entry Sequence

After the application has been downloaded, the entry sequence will begin. The first screen is the start screen (see Fig. 4).

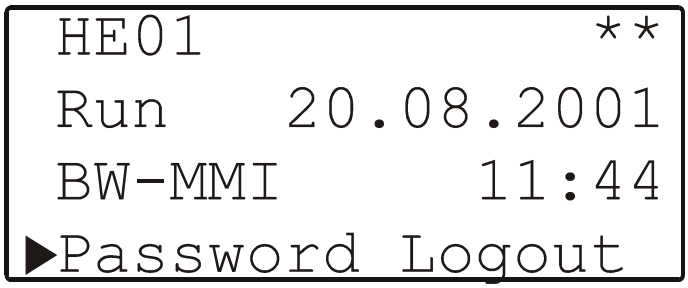

Fig. 4. The start screen

The start screen includes the name of the application (in this case, HE01) as well as the current date and time.

If "BW-MMI" appears, this means that the controller offers C-bus access (which you would need to communicate with modules located on a C-bus). See section "C-Bus Configuration" on page 36 for more information.

NOTE: The two-digit CPU field (in the upper right-hand corner), the date, and the time will be editable only if you are already in access level 3 (see section "Access Levels" on page 6).

NOTE: The "Logout" edit field will appear only if you are already in access level 2 or 3 (see section "Access Levels" on page 6).

Selecting the "Password" field will take you to the password procedure (see section "Password Procedure" on page 6).

Access Levels

The use of three access levels ensures that only authorized personnel can read/edit sensitive system data. In order to enter access level 1, no password is necessary, and only those screens accessible at that level will be displayed (see also Table 2). In order to enter access levels 2 and 3, a corresponding password must be entered.

Table 2. Access Levels and Corresponding Authorizations

access level	PLANTS key ( )	TIME PROGRAMS key ( )	SYSTEM TOPICS key ( )	ALARMS key ( )
1	read only	read only	no effect	read only
2	read only	time schedules	no effect	read only
3	unlimited editing possible			read only

NOTE: In the following sections, the password procedure will not be repeated. Refer back to this section for guidance on entering the password.

IMPORTANT

If you have forgotten the level-3 password, please contact your local Honeywell branch.

Password Procedure

Upon selecting the "`Password`" field, the following screen will appear (see Fig. 5 on page 7).

Fig. 5. Entering a password

NOTE: The "Change" field will appear only if you are already in access level 3.

To enter a password, proceed as follows:
1. Move the cursor to the "****" field.
2. Confirm using the ENTER key – the cursor blinks at the first digit.
3. Enter the password by increasing/decreasing the value of each individual digit using the PLUS or MINUS keys and moving to the next digit using the RIGHT ARROW key.
4. Upon completion of password entry, confirm using the ENTER key. You can then leave this screen and return to the start screen using the CANCEL key.

If you wish to modify a password, select the "Change" field. This will take you to the "Modify password" screen (see also section "Modifying the Password" on page 7).

Modifying the Password
In order to modify a password, you must already be in access level 3. After having moved to and selected "Change" (see Fig. 5 on page 7), the "Modify password" screen will appear (see Fig. 6).

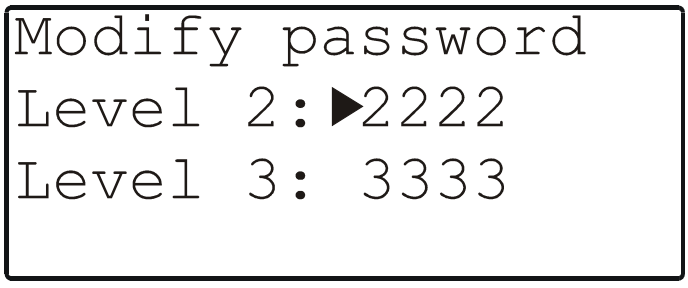

Fig. 6. Modifying the password

You may now modify either of the two passwords.
NOTE: The default level-2 password is "2222". The default level-3 password is "3333".

THE PLANTS FAST-ACCESS KEY

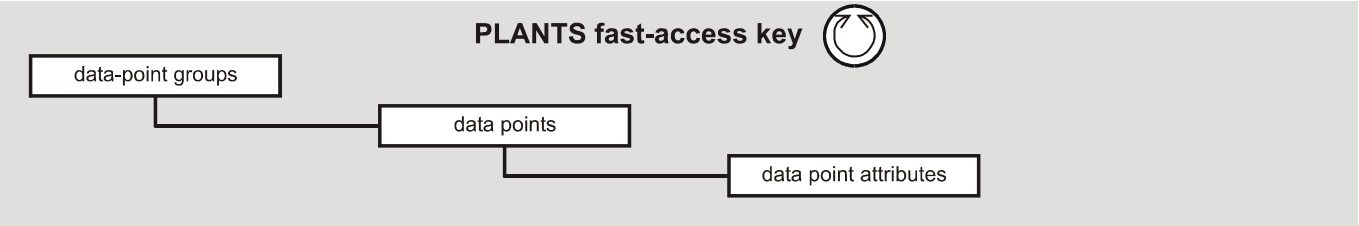

Fig. 7. The PLANTS fast-access key

Plant Components (Data-Point Groups)

Pressing the PLANTS fast-access key will cause a listbox headed "`Plant Components`" to appear (see Fig. 8).

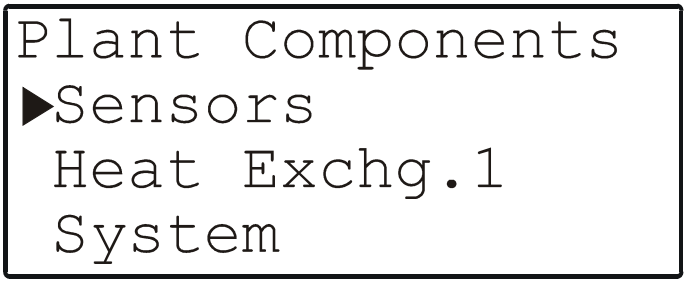

Fig. 8. Listbox of plant components (data-point groups)

Depending upon your given application (see Table 3 on page 9) and configuration data, this listbox will contain a varying number of items (i.e. data-point groups), meaning that you may have to scroll downwards through several screens in order to display all of the items.

Table 3. Items appearing in the "Plant Components" listbox

	Application		
	AH03	**HT02**	**HE01**
items	Sensors	Sensors	Sensors
	AHU Strategy	Htg Strategy	Heat Exchg.1
	Dampers	Boiler1	System
	Energy Recovery	Boiler2	Heating Circ.1
	Filters	Boiler3	Heat Exchg.2
	Heating	Boiler4	Heating Circ.2
	Cooling	System	Dom. Hot Water1
	Humidity	Heating Circ.1	Dom. Hot Water2
	Fans	Heating Circ.2	Pulse meters
	Heating Circ.	Heating Circ.3	M-Bus meters
	Boiler	Dom. Hot Water	LON meter
	Zone1	Heat meter	Alarms
	Zone2	Alarms	Time Programs
	Zone3	Time Programs	LON
	Zone4	LON	Htg Strategy
	Alarms		
	Time Programs		
	LON		

Data-Points

Selecting an individual group of data-points (e.g. "Sensors") will cause a listbox (including a scrollbar at the right-hand margin) with a corresponding heading to appear (see Fig. 9).

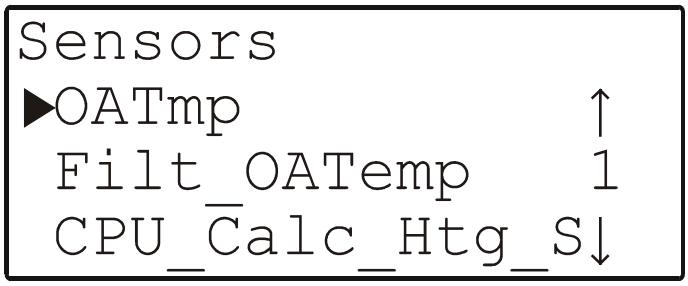

Fig. 9. Listbox of data-points belonging to a plant component

Depending upon your given application and configuration data, this listbox will contain a varying number of items (i.e. data-points) meaning that you may have to scroll downwards through several screens in order to display all of the items.

NOTE: In the case of listboxes spread out over three or more screens, use of the scrollbar (the value of which is incremented or decremented with the PLUS and MINUS keys; see also Table 1 on page 3) can greatly simplify navigation by allowing the user to skip ahead to the screen of interest.

Data-Point Attributes

Selecting an individual data-point (e.g. `OATmp`) will cause a series of screens (viewable in its entirety by scrolling sideways) with a corresponding heading to appear (see Fig. 10).

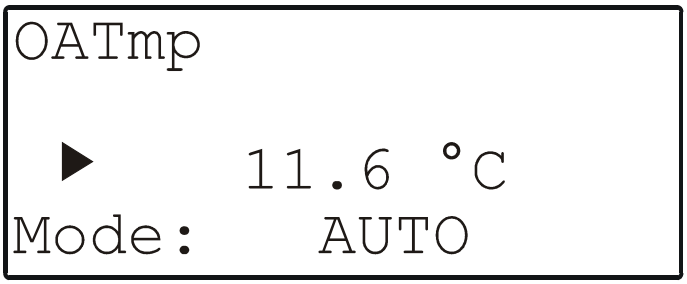

Fig. 10. Data-point attributes (first screen of a series)

Depending upon the type and sub-type of the given data-point (see section "Types of Data-Points" on page 25) this series will consist of a varying number of screens containing edit fields in which you can specify the data-point's various different attributes. You will thus have to scroll sideways through several screens in order to display/configure all of the fields.

NOTE: See "Appendix 1: Data-Point Attributes" on page 57 for an explanation of the meaning of the expression "data-point attributes", an exhaustive list of all the possible attributes, their meanings, and how to edit them.

THE TIME PROGRAMS FAST-ACCESS KEY

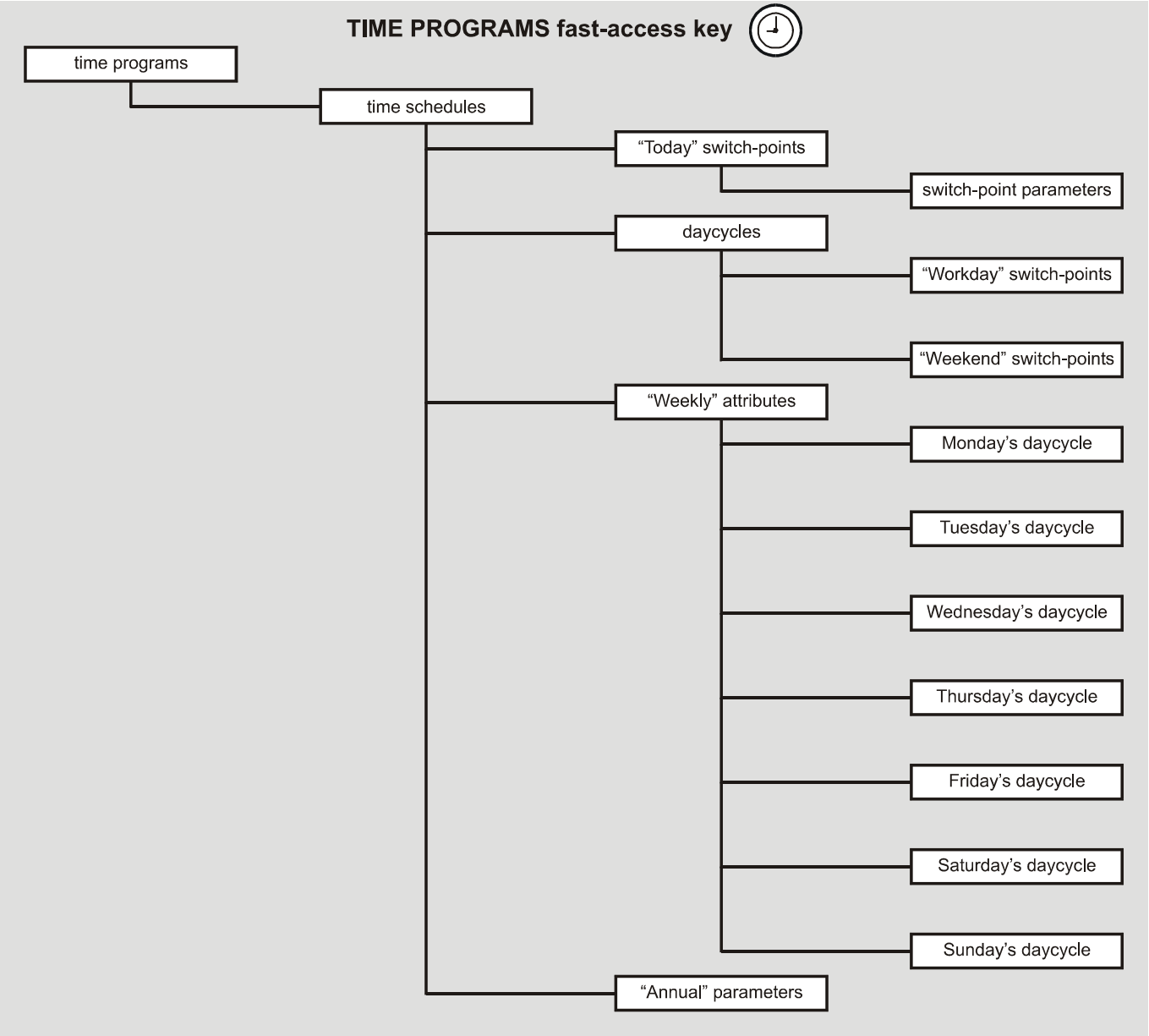

Fig. 11. The TIME PROGRAMS fast-access key

Time Programs

Using the TIME PROGRAMS key, you can assign **values** (e.g. temperatures) and **states** (e.g. "ON" or "OFF") to data-points belonging to a specific time schedule. These values/states will then become active/inactive at the **switch-points** (i.e. starting and stopping times) you specify. Various different time schedules are grouped together to form a so-called "time program."

NOTE: You will have to be in access level 2 or 3 in order to edit a data-point's value, state, and/or switch-points.

Pressing the TIME PROGRAMS fast-access key will cause a listbox with a corresponding heading to appear (see Fig. 12).

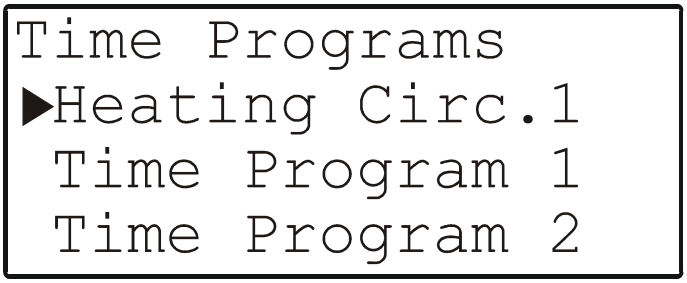

Fig. 12. Time programs

Depending upon your given application (see Table 4) and configuration data, this listbox will contain a varying number of items (i.e. time programs) from which to choose, meaning that you may have to scroll downward to display them all.

Table 4. Items appearing in the "`Time Programs`" listbox

TP_index	Application		
	AH03	**HT02**	**HE01**
1	AHU_Strategy	Heating Circ.1	Heating Circ.1
2	Heating Circuit	Heating Circ.2	Heating Circ.2
3	Time Programs	Heating Circ.3	Dom. Hot Water1
4	Zone	Htg_Strategy	Dom. Hot Water2
5	LON	Dom. Hot Water	Time Program 1
6		Time Program 1	Time Program 2
7		Time Program 2	Time Program 3
8		Time Program 3	Alarm NonCrit En
9		Time Prog Lon 1	Time Prog Lon 1
10		Time Prog Lon 2	Time Prog Lon 2
11		Time Prog Lon 3	Time Prog Lon 3
12		Time Prog Lon 4	Time Prog Lon 4
13		Time Prog Lon 5	Time Prog Lon 5
14			Time Prog Lon 6
15			Time Prog Lon 7
Remark: See Lizard documentation for defaults.			

Time Schedules

Selecting an individual time program (e.g. `Heating Circ. 1`) will cause a screen with a corresponding heading to appear (see Fig. 13).

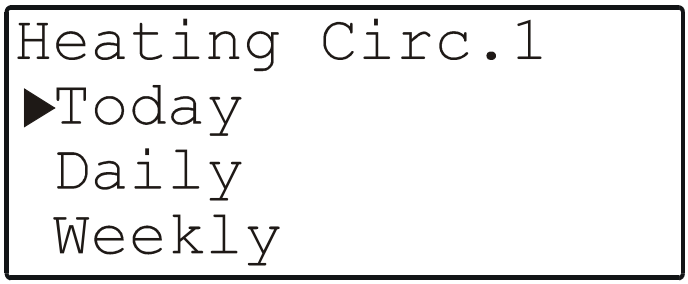

Fig. 13. Time schedules belonging to a time program

Regardless of your application and configuration, this listbox will always contain the same four items (i.e. time schedules) from which to choose, meaning that you will have to scroll downwards to display the fourth item ("`Annual`").

The four time schedules are as follows:

- Today,
- Daily,
- Weekly, and
- Annual.

See also the following sections.

The "Today" Time Schedule
The "Today" time schedule allows the user to make an immediate, temporary change to the data-point's switch-points, value, and state without affecting the original time program.

NOTE: In order to use the "Today" time schedule, the data-point must have a value/state and switch-point already assigned to it.

NOTE: Changes to the "Today" time schedule affect the time program only for the current day. If you change a starting switch-point, the new starting switch-point will take effect within 24 hours of the current time. That means, for example, that a starting switch-point of 10:00 a.m. entered at 10:27 a.m. will activate the temporary changes ONLY AS OF the next morning. The changed fields are valid for only 24 hours, and are then automatically deleted after the stopping switch-point has been reached.

Selecting the "Today" time schedule will cause a listbox with a corresponding heading (containing the given time program and, next to it, the time schedule) to appear (see Fig. 14).

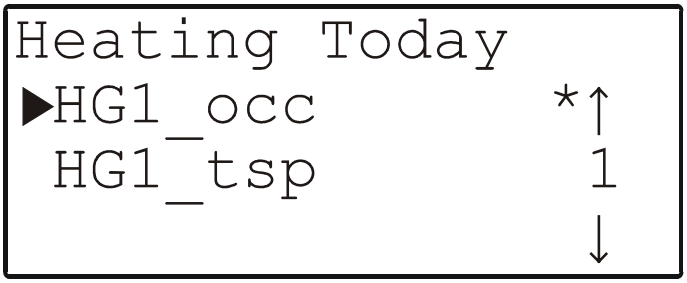

Fig. 14. Data-points belonging to the "Today" time schedule

Depending upon your given application and configuration data, as well as upon the specific time program you have chosen, this listbox will contain numerous items (i.e. data-points) meaning that you may have to scroll downwards through several screens in order to display all of the items. In the example considered here, however, the "Today" time schedule (which belongs to the "Heating" time program) contains only two data-points (`HG1_occ` and `HG1_tsp`).

NOTE: In the case of listboxes spread out over three or more screens, use of the scrollbar (the value of which is incremented or decremented with the PLUS and MINUS keys; see also Table 1 on page 3) can greatly simplify navigation by allowing the user to skip ahead to the screen of interest to him.

Using the basic function keys, you can now move to and select a particular data-point. A new screen will then appear in which it is possible to display/configure, e.g. its state (in the case of `HG1_occ`, either "`Occ`" or "`Unocc`"; see Fig. 15), its value (in the case of `HG1_tsp`, a temperature; see Fig. 16), and/or the corresponding switch-points ("`From:`" and "`To:`").

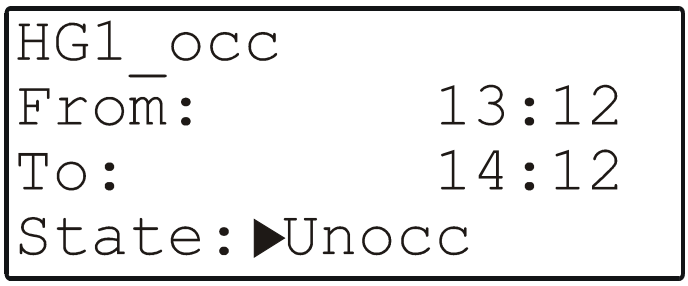

Fig. 15. Displaying/configuring the switch-points and state in the "Today" time schedule

Fig. 16. Displaying/configuring the switch-points and value in the "Today" time schedule

NOTE: After you have changed a data-point's state, value, and/or switch-point(s), it will be marked with an asterisk as shown in Fig. 14, in which `HG1_occ` is so marked.

The 'Daily' Time Schedule

Selecting the "Daily" time schedule will cause a listbox with a corresponding heading (containing the given time program and, next to it, the word "`Daily`") to appear (see Fig. 17).

Fig. 17. Daycycles belonging to all four time schedules

Regardless of your application and the specific time program you have chosen, this listbox will always contain the same three items (i.e. the same three

daycycles) from which to choose. However, you can create as many additional daycycles as you wish (see section "Deleting and Copying/Creating Daycycles" on page 17).

The three default daycycles are as follows:

- "Workday",
- "Weekend", and
- "DP_1".

See also the following section.

The 'Workday', 'Weekend', and 'DP_1' Daycycles
Selecting the "Workday", "Weekend", and "DP_1" daycycles will cause a listbox with a corresponding heading (containing the given time program and, next to it, the daycycle) to appear (see Fig. 18 on page 16).

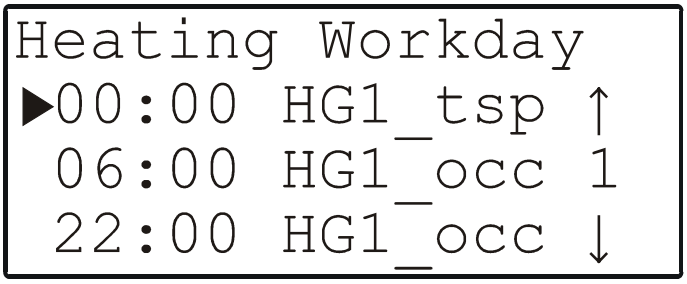

Fig. 18. Data-points displayable/editable in the "Workday" daycycle

Depending upon your given application and configuration data, as well as upon the specific time program you have chosen, this listbox will contain a number of items (i.e. data-points) meaning that you may have to scroll downwards through several screens in order to display all of the items. Regardless of the given daycycle, however, the same data-points will always appear. In the example considered here, there are only two data-points (`HG1_occ` and `HG1_tsp`).

NOTE: The clock-times appearing in the left column of the screen shown in Fig. 18 are for informational purposes, only, i.e. they are not editable. To configure a data-point's state, value, and/or switch-point(s), proceed as described below.

Using the basic function keys, you can now move to and select a particular data-point. A new screen will then appear in which it is possible to display/configure, e.g. its state (in the case of `HG1_occ`, either "Occ" or "Unocc"; see Fig. 19), its

value (in the case of HG1_tsp, a temperature; see Fig. 20 on page 17), its corresponding switch-point ("Time:"), and/or to optimize it ("ON" or "OFF").

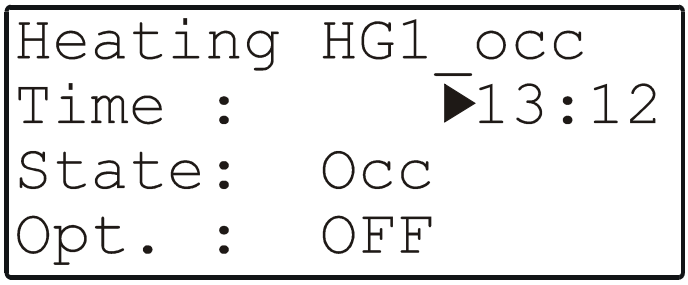

Fig. 19. Displaying/configuring the time, state, and optimization of a data-point in the "Daily" time schedule

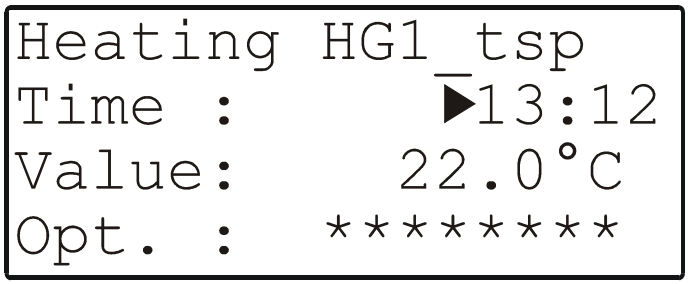

Fig. 20. Displaying/configuring the time, value, and optimization of a data-point in the "Daily" time schedule

NOTE: If asterisks appear in the "Opt.:" line, this means that the given data-point is not suitable for optimization and that thus no entry can be made here (see also section "Optimizing a Switch-Point" on page 64).

Daycycles of this kind will be needed in order to configure the individual days of the week (see also "Assigning Daycycles to Individual Days of the Week" on page 20) of which the "Weekly" time schedule (see section "The 'Weekly' Time Schedule" on page 19) is comprised.

Deleting and Copying/Creating Daycycles

Existent daycycles can be deleted. It is also possible to copy existent daycycles and then to modify them, thus effectively creating new daycycles.

To delete a daycycle this, go to Fig. 17 (see page 15), move the cursor to the daycycle to be deleted (e.g. DP_2), press the MINUS key, and confirm the query appearing in the resultant screen (see Fig. 21). If desired, you can reject the query using the CANCEL key.

Fig. 21. Deleting a daycycle

New daycycles are created by copying and modifying existent daycycles.

To copy and modify an existent daycycle, go to Fig. 17 (see page 15), move the cursor to the daycycle to be copied (e.g. DP_1), press the PLUS key, and confirm the query appearing in the resultant screen (see Fig. 22). If desired, you can reject the query using the CANCEL key.

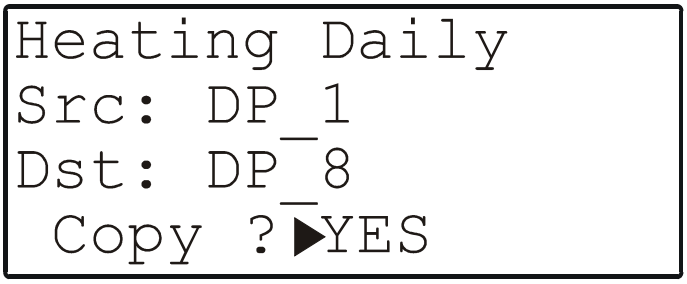

Fig. 22. Creating a daycycle

The copy of the new daycycle is issued the name "DP" to which the lowest number which has not already been assigned to an existent daycycle will be appended. Thus, the first new daycycle to be created would be named DP_1.

NOTE: If the "COPY" function is used to create a new daycycle, the next free daycycle will be assigned. This means that the default daycycle can be overridden by a new daycycle.

Deleting a Switch-Point
Existent switch-points can be deleted.

To do this, go to the listbox displayed in Fig. 18 (see page 16), move the cursor to the switch-point to be deleted, press the MINUS key, and confirm the query

appearing in the resultant screen (see Fig. 23). If desired, you can reject the query using the CANCEL key.

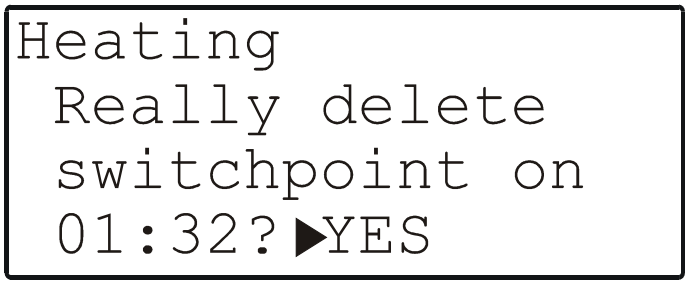

Fig. 23. Deleting a switch-point

Creating a Switch-Point
Switch-points are defined by selecting desired data-points from a list of all possible data-points valid for the given daycycle and then editing the corresponding value/state and clock-times (i.e. switch-points).

To do this, move to the listbox displayed in Fig. 18 and press the PLUS key. In the resultant screen (see Fig. 24), you will be presented with a list of all possible data-points valid for this daycycle.

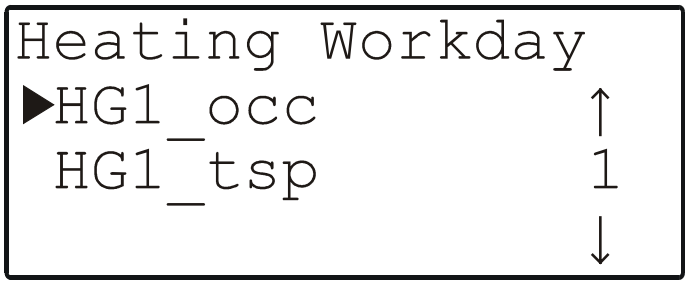

Fig. 24. Creating a switch-point

Move the cursor to the data-point for which switch-points are to be defined and confirm.

A screen resembling Fig. 19 or Fig. 20 (as the case may be) will then appear. Edit the value/state and switch-point(s) as desired and confirm.

The 'Weekly' Time Schedule
Selecting the "Weekly" time schedule will cause a listbox with a corresponding heading (containing the given time program and, next to it, the word "`Weekly`") to appear (see Fig. 25).

Fig. 25. Parameters belonging to the "Weekly" time schedule

Regardless of your application and configuration as well as the specific time program you have chosen, this listbox will always contain the same seven items (i.e. the same seven parameters, one for each day of the week) meaning that you will have to scroll downwards through several screens in order to display all of the items.

Assigning Daycycles to Individual Days of the Week
Selecting a particular day of the week will cause a listbox with a corresponding heading (containing the given time program and, next to it, the abbreviated name of the day of the week) to appear (see Fig. 26).

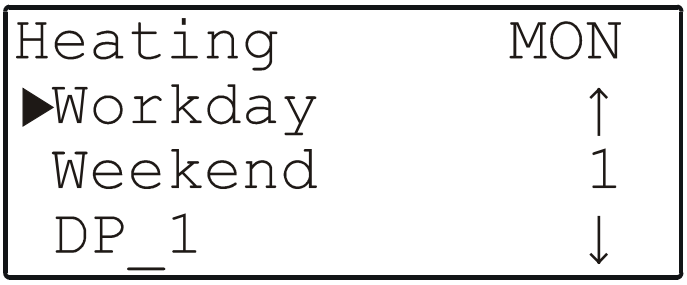

Fig. 26. Daycycles assignable to days of the week

Selecting the "Workday", "Weekend", or "DP_1" daycycles will cause a screen analogous to the following to appear (see Fig. 27).

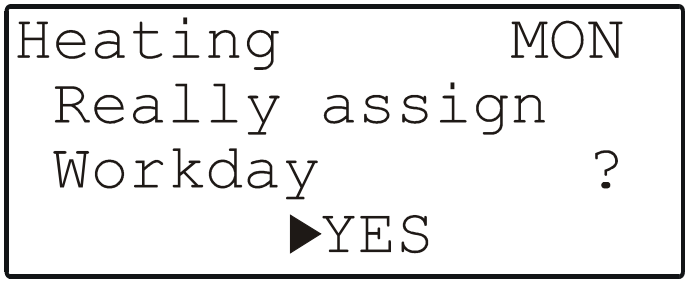

Fig. 27. Confirming assignment of a daycycle to days of the week

Upon confirming your selection, you will be returned to the previous screen so that you may continue assigning daycycles to the other days of the week.

By assigning daycycles (see section "The 'Workday', 'Weekend', and 'DP_1' Daycycles" on page 16) to the individual days of the week, you effectively define the make-up of a typical week. Week after week throughout the year, a pre-determined daycycle will then be effective on the corresponding day of the week.

Example 1: The same daycycle (namely "Workday") could be assigned to Monday through Friday, while a different daycycle (i.e. "Weekend") could be assigned to Saturday and Sunday.

Example 2: Let's assume that, for some reason, Thursday requires a different daycycle. A specially-created daycycle (`DP_2`) could therefore be assigned it while the "Workday" daycycle is assigned to Monday, Tuesday, Wednesday, and Friday.

NOTE: In the case of XL50 MMI's connected only to a C-bus, the name of specially-created daycycles can be changed only via a PC or central.

The 'Annual' Time Schedule
Selecting the "Annual" time schedule will cause a screen with a corresponding heading (containing the given time program and, next to it, the word "`Annual`") to appear (see Fig. 28).

Fig. 28. Parameters belonging to the "Annual" time schedule

Regardless of your application and the specific time program you have chosen, this screen will always contain two lines ("From:" and "To:") in which you can enter the initial day and final day of the period of time to which a particular daycycle should be assigned. To enter the desired daycycle, move the cursor to the bottom line (in which the asterisks are located) and confirm. The following screen will then appear (see Fig. 29).

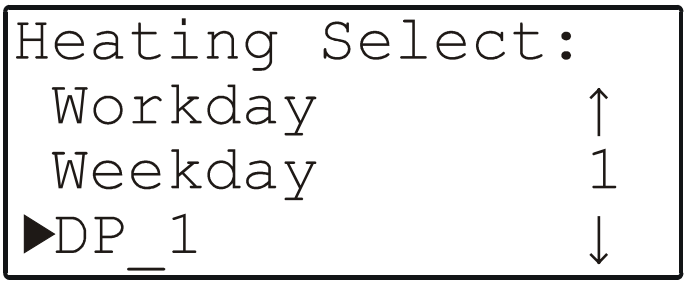

Fig. 29. Assigning a daycycle to a time period

Depending upon the number of daycycles you have deleted and/or created, this listbox will contain a varying number of daycycles from which to choose, meaning that you may have to scroll downwards through several screens in order to display all of the items.

Upon successful completion of the daycycle assignment process, a screen analogous to the following (see Fig. 30) will then appear.

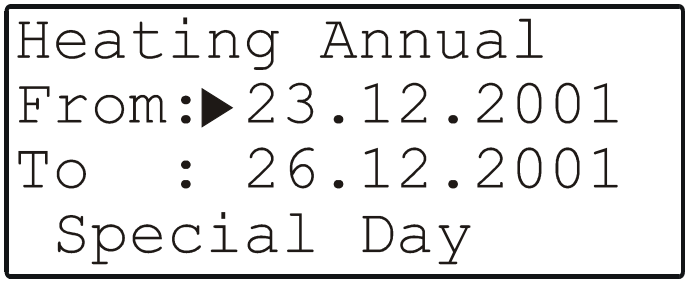

Fig. 30. Successful completion of the daycycle assignment process

This procedure (Fig. 28 to Fig. 30) may now be repeated as often as desired in order to assign individual daycycles to additional periods of time throughout the year. When the process is complete, the result is an annual time schedule.

NOTE: The time periods of the annual program should not overlap. If your time periods do overlap, the ends of individual periods will be truncated to correspond to the starting times of subsequent time periods. Time periods wholly included within other time periods will be deleted.

Creating Additional Annual Time Schedules
It is possible to repeat the process described in section "The 'Annual' Time Schedule" for other time programs. This is done using the PLUS key.

Navigating through Annual Time Schedules
It is possible to navigate through the various different annual time schedules you have created by scrolling sidewise using the LEFT ARROW and RIGHT ARROW keys.

Deleting Annual Time Schedules
Existent annual time schedules can be deleted using the MINUS key.

THE SYSTEM TOPICS FAST-ACCESS KEY

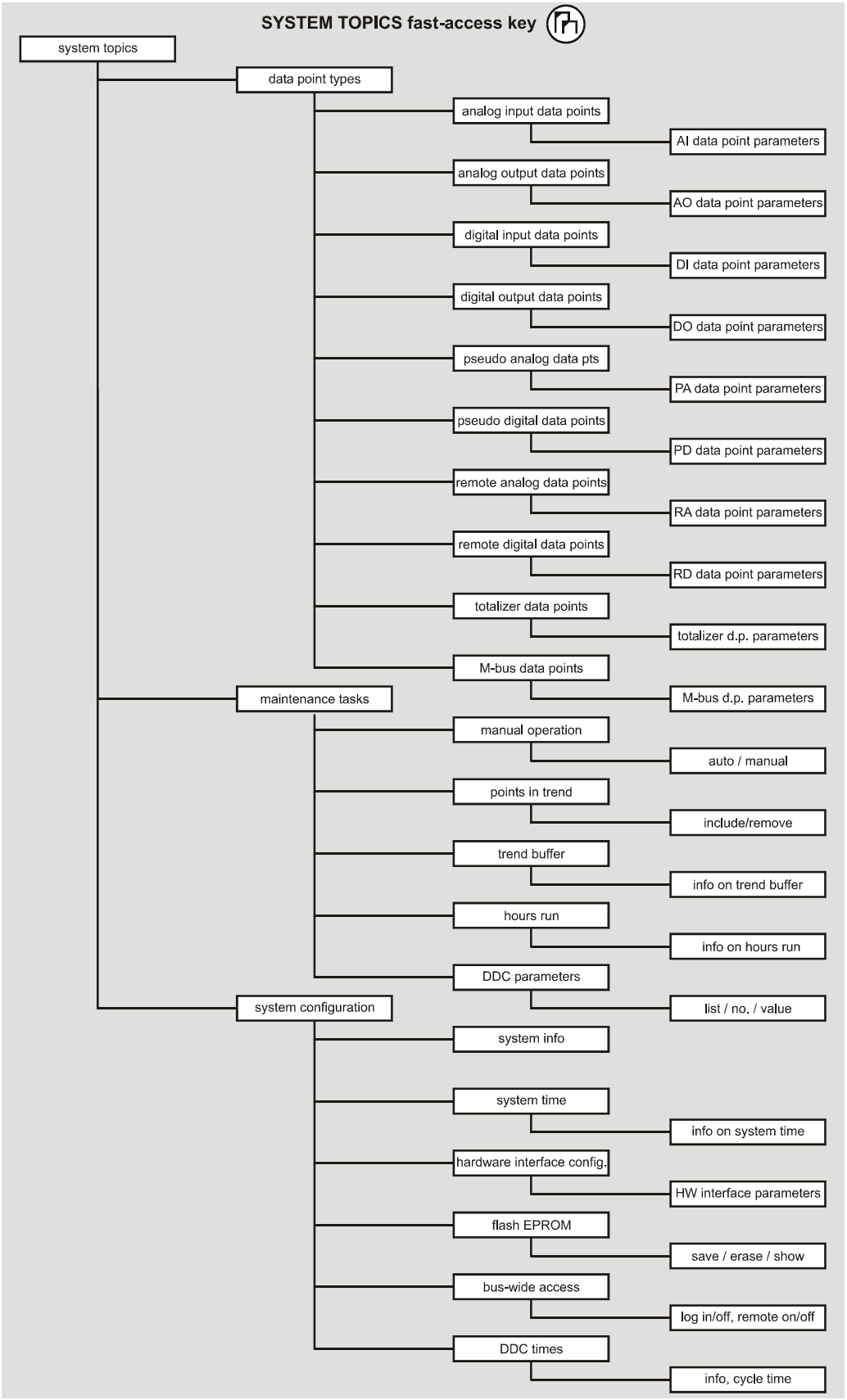

Fig. 31. The SYSTEM TOPICS fast-access key

Pressing the SYSTEM TOPICS fast-access key will cause a listbox with a corresponding heading to appear (see Fig. 32).

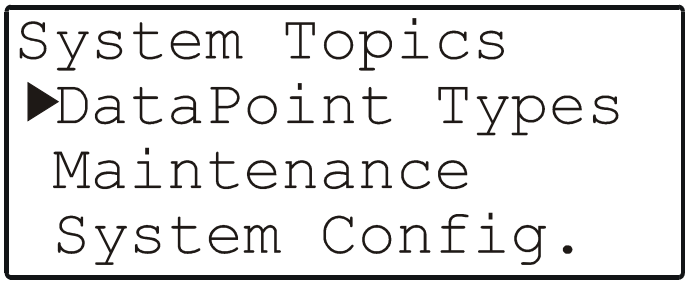

Fig. 32. System topics

Regardless of your application or configuration, this listbox will always contain the same three items from which to choose.

Types of Data-Points

With the Excel 50 MMI, it is possible to obtain information on a total of three different basic groups of data-points:

- physical data-points (consisting of five different types);
- pseudo data-points (consisting of two different types);
- remote data-points (consisting of two different types);
- totalizer data-points (e.g. pulse counters, reset input).

NOTE: An additional basic group called "M-bus points" ("M" = "meter bus") will appear only if your Excel 50 MMI has been equipped with M-bus modules. See also Table 5 on page 35.

Types of Physical Data-Points

Physical data-points are inputs and outputs directly connected to a hardware device such as a sensor or an actuator. The Excel 50 MMI is equipped to handle a maximum of 22 physical data-points. Physical data-points include the following:

- analog inputs (i.e. measured values received from field devices),
- analog outputs (i.e. modulating or floating control signals generated by the controller, itself),
- digital inputs (i.e. state or alarm signals received from field devices),
- digital outputs (i.e. commands issued by the controller, itself), and
- totalizer signals (i.e. reset inputs or pulse meter inputs generated by / received from field devices).

Types of Pseudo Data-Points

Pseudo data-points are generated in software to achieve the application. They are not connected to any hardware device. Pseudo data-points include the following:

- pseudo analog (e.g. internally calculated values, calculated setpoints,) and
- pseudo digital (e.g. internally calculated commands, e.g. point alarms, pump exercise, etc.).

Types of Remote Data-Points

Remote data-points include the following:

- remote analog (e.g. outside air temperature, heat demand, etc.) and
- remote digital (e.g. alarm reset, alarm outputs, etc.).

Maintenance

Selecting "`Maintenance`" will cause a listbox with a corresponding heading to appear (see Fig. 33 on page 26).

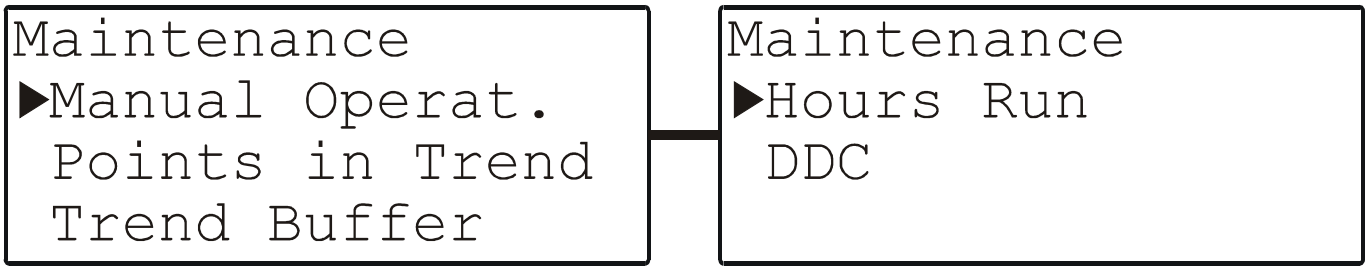

Fig. 33. Maintenance tasks

Regardless of your application or configuration, this listbox will always contain the same five items (i.e. maintenance tasks) from which to choose. It will thus be necessary to scroll downwards in order to display all of the items.

Manual Operation

Selecting "`Manual Operat.`" will cause a listbox with a corresponding heading to appear (see Fig. 34).

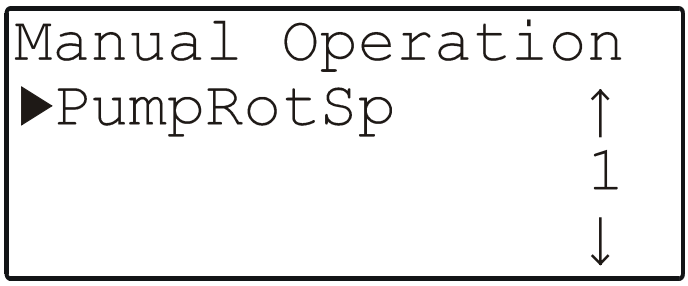

Fig. 34. Manual operation

Depending upon your given application and configuration data, this listbox will contain a number of items (i.e. data-points) meaning that you may have to scroll downwards through several screens in order to display all of the items. In the example considered here, however, there is only one such data-point.

Using the basic function keys, you can now move to and select a particular data-point. A new screen (see upper left screen in Fig. 80 on page 58) will then appear in which you can display its state ("Manual" or "Auto", as the case may be) and value.

To set the value, select the value field and change it. The mode will automatically switch to "Manual". To reset the mode to "Auto", select "Manual" and change to "Auto".

NOTE: Using the procedure described here, the state of data-points can be changed only from "Manual" to "Auto". If you wish to change the state of data-points from "Auto" to "Manual", this must be done as described in "Appendix 1: Data-Point Attributes" on page 57.

If the operating mode is changed, an alarm screen will appear immediately (see Fig. 35 or Fig. 36).

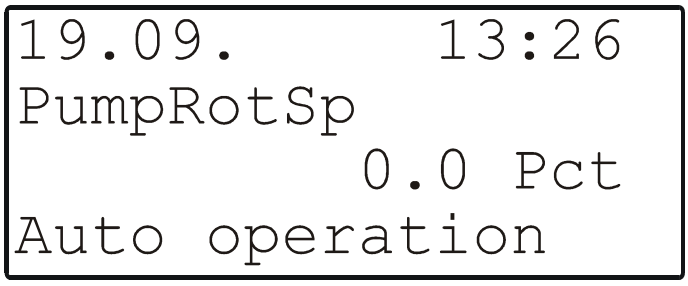

Fig. 35. Alarm screen (Auto)

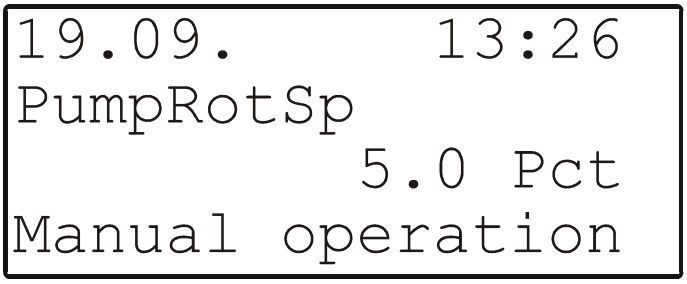

Fig. 36. Alarm screen (Manual)

In this example, Fig. 35 would appear if the given data-point was initially in the manual operation mode; if desired, you could then shift to automatic operation by moving the cursor to the corresponding field ("Auto") and pressing the ENTER key. On the other hand, Fig. 36 would appear if the given data-point was initially in the automatic operation mode; if desired, you could then shift to manual operation by moving the cursor to the corresponding field ("Manual") and pressing the ENTER key.

NOTE: Changing the value (in this example, "0.0 pct") will likewise shift the given data-point to the manual operation mode.

Confirming this alarm by pressing the CANCEL key will return you to the previous screen.

See also section "The 'Operating Mode' Attribute" on page 63.

Points in Trend

Selecting "Points in Trend" will cause a listbox with a corresponding heading to appear (see Fig. 37, in which it is assumed that the trend log has been set).

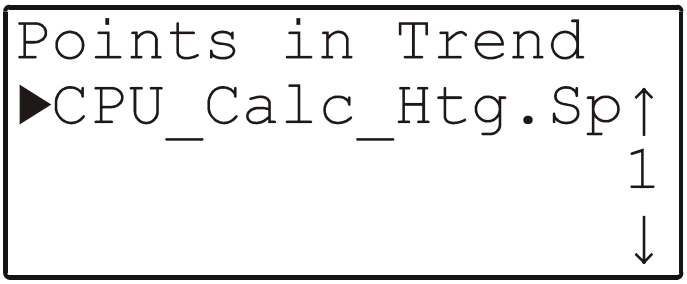

Fig. 37. Points in trend

Fig. 38. Points in trend (alternative screen)

Using the basic function keys, you can now move to and select a particular data-point. A new screen will then appear in which you can display and change its state ("ON" to "OFF"). It is not possible to edit the associated value (in this example: "8.0 °C").

Disable trend logging for this data-point by moving the cursor to the appropriate field and confirming.

Enable trend logging for any desired data-point as follows:

1. Press the PLANT fast-access key.
2. Select the desired item in the "Plant Components" list.
3. Select the desired data-point from the appropriate data-point group and press the ENTER key to confirm. The corresponding point value will be displayed.
4. Using the RIGHT ARROW key, go to the second screen in the sequence (see "Appendix 1: Data-Point Attributes").
5. Set the trend log to ON.

Trend Buffer

Selecting "Trend Buffer" will cause a listbox with a corresponding heading to appear (see Fig. 39).

Fig. 39. Trend buffer

A maximum of 20 data-points (with a total of 200 values) can be entered into the trend buffer. Move the cursor to the appropriate data-point and confirm.

In this screen, the trend buffer entries for the data-point can be displayed using the normal methods for moving through a list box.

Return to Fig. 39 by pressing the CANCEL key.

Hours Run

Selecting "Hours Run" will cause a listbox with a corresponding heading to appear (see Fig. 40).

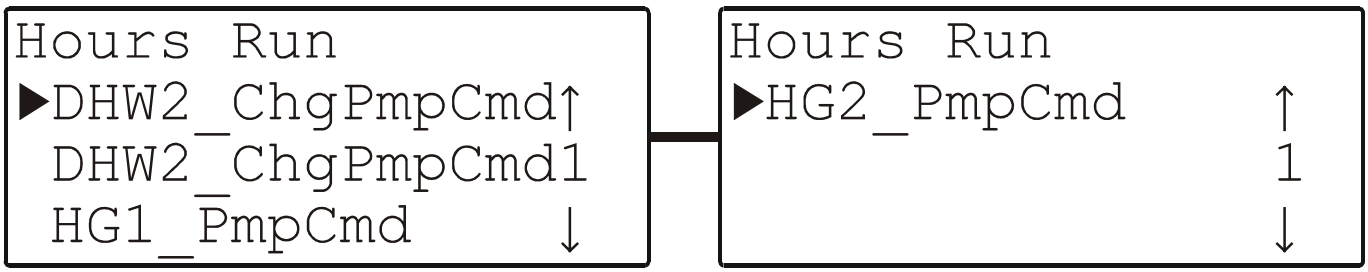

Fig. 40. Hours run

An "hours run" log (i.e. a log of the number of hours for which e.g. a heating circuit pump has been in operation) can be carried out for digital data-points (physical and pseudo). The accumulated hours run are displayed in the "Hours Run" attribute. The corresponding values have a resolution of 1 minute.

Move the cursor to the desired data-point and confirm.

The resultant screen (see Fig. 41) will then display the total running hours logged together with the number of times the device has been switched on.

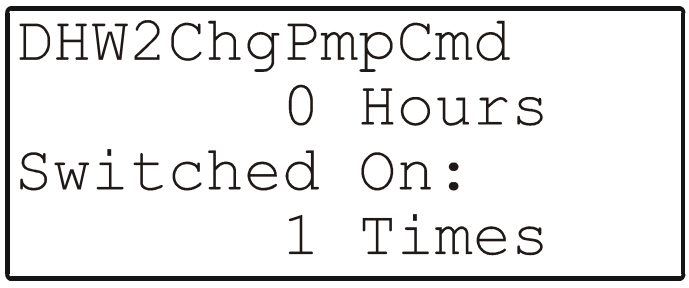

Fig. 41. Total running hours and no. of times switched on

DDC Parameters

Selecting "DDC Parameters" will cause a listbox with a corresponding heading to appear (see Fig. 42).

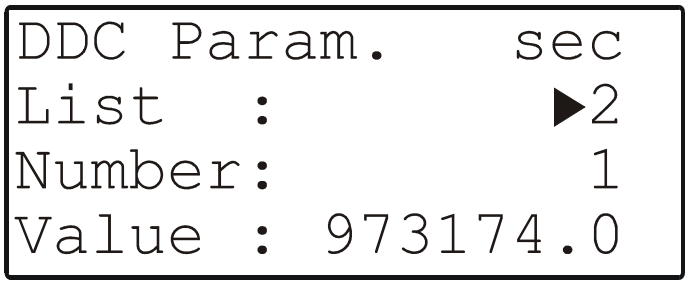

Fig. 42. DDC parameters

Regardless of your application and configuration data, this listbox will contain exactly the following three items:

- "List:" i.e. the list in which the given DDC parameter appears.
- "Number:" the position in the list at which the given DDC parameter appears.
- "Value:" the value of the given DDC parameter; if the value has a unit (e.g. "sec" or "°C") assigned to it, this unit will be displayed in the upper right-hand corner.

System Configuration

Selecting "System Configuration" will cause a listbox (consisting of two screens) with a corresponding heading to appear (see Fig. 43).

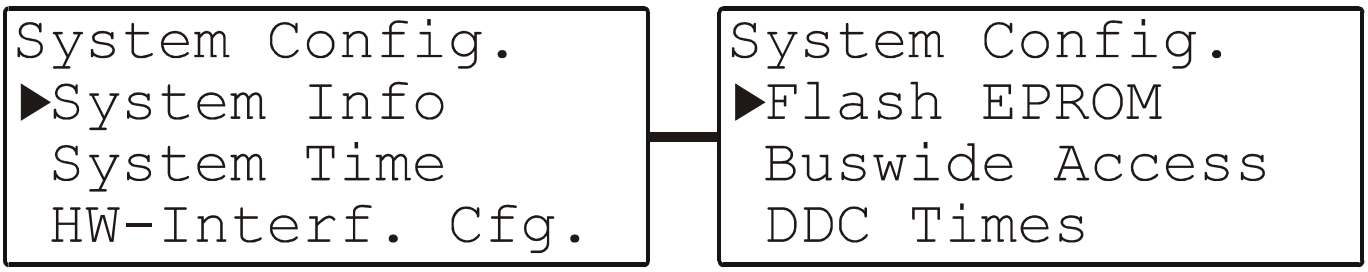

Fig. 43. System configuration

Regardless of your application or configuration, this listbox will always contain the same six items from which to choose. It will thus be necessary to scroll downwards in order to display all of the items.

System Info

Selecting "System Info" will take you to the first of the following series of screens (see Fig. 44).

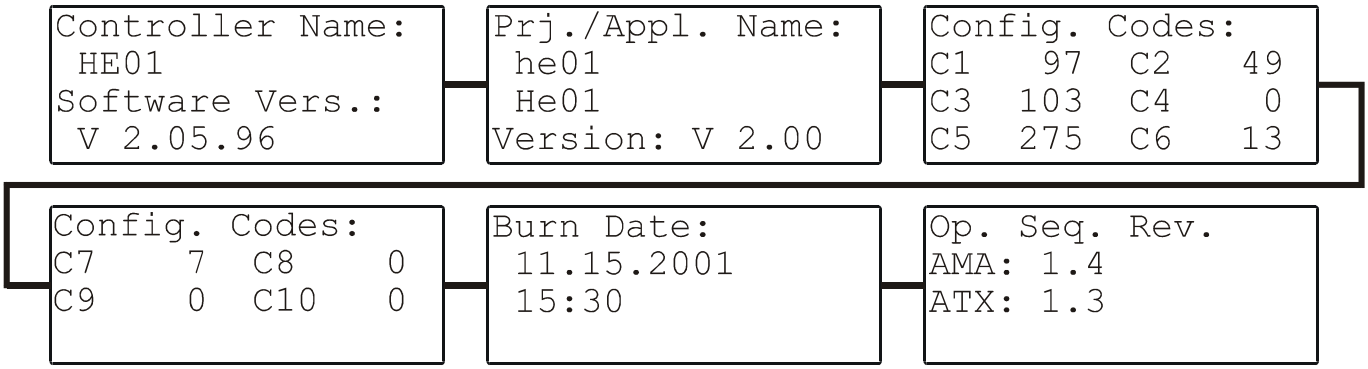

Fig. 44. System information

The first screen (in the upper left-hand corner) displays the controller name and, below it, the software version. You may now proceed to the next screen (the contents of which depends upon the type of application used).

The second screen displays the name of the current project and application. You may now proceed to the next screen.

The third (and, if necessary, the fourth) screen displays the codes of the configurable application.

NOTE: Not all application have only six configuration code numbers. Application with eight or up to ten configuration codes have an additional screen as shown here.

NOTE: If you wish to change the codes, you must first perform a RESET (see section "Resetting" on page 3). You will then be able to change the codes during the resultant start-up sequence.

You may now proceed to the next screen.

The next screen displays the burn date and time of the current project and application. You may now proceed to the next screen.

The final screen displays the revision numbers for the AMA and ATX files used to create the operating sequence.

System Time

Selecting "`System Time`" will cause a listbox with a corresponding heading to appear (see Fig. 45).

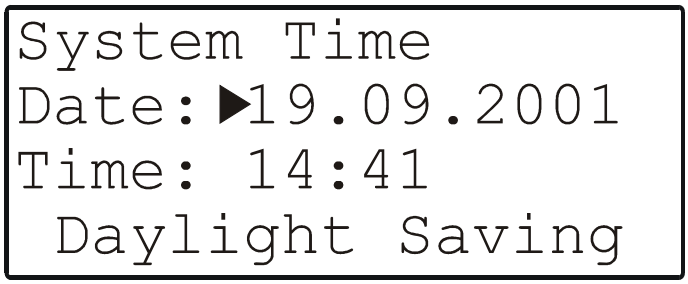

Fig. 45. System time

If desired, you can now make changes to the time and the date which the Excel 50 MMI uses for its control programs; you can also state the period during which Daylight Savings Time should be in effect for the current year.

NOTE: The date must be entered in the format determined by the engineering units: for example, 23. July 1997 must be entered as 23.07.1997 for Europe and 07/23/1997 for the U.S. Press the CANCEL key to abort the operation or to cancel an incorrect entry before the ENTER key has been pressed. The value previously displayed will be restored.

NOTE: The time must be entered in the following format: HH:MM in 24-hour clock format; for example: 9:30 a.m. must be 09:30 and 9:30 p.m. must be 21:30. Press the CANCEL key to abort the operation or to cancel an incorrect entry before the ENTER key has been pressed. The value previously displayed will be restored.

Daylight Saving

The actual dates on which daylight savings time starts and ends in a given year must be changed on an annual basis. Move the cursor to the "`Daylight Saving`" field and confirm. The following screen appears.

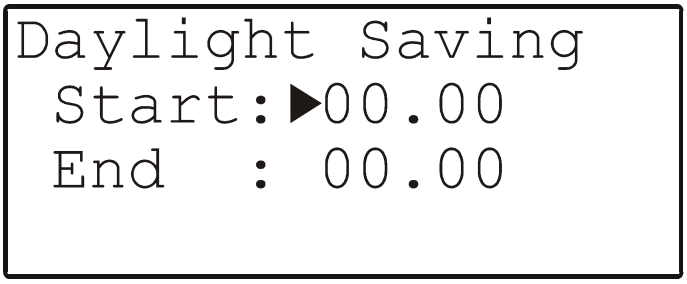

Fig. 46. Entering the dates for daylight savings time

Using the PLUS or MINUS keys, you can now enter the dates on which daylight savings time starts and ends for the current year. Move from field to field using the ARROW keys and confirm.

NOTE: You can press the CANCEL key to abort the operation or to cancel an incorrect entry before it has been confirmed using the ENTER key. The previously-displayed value will then be restored.

Upon completing entry of the daylight savings start and end dates or of the date or time, the following screen will appear:

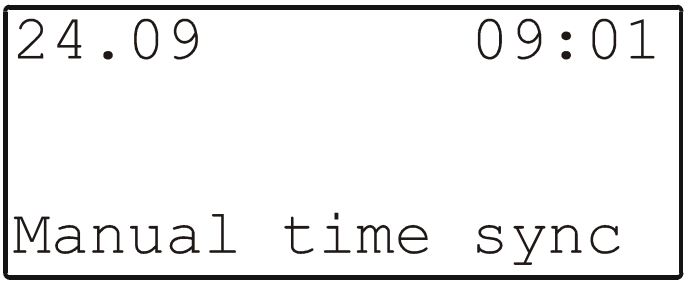

Fig. 47. Screen upon completing entry of daylight savings start and end dates or of the date or time

Hardware Interface Configuration

Selecting "`HW-Interf. Cfg.`" will cause a listbox with a corresponding heading to appear (see Fig. 48).

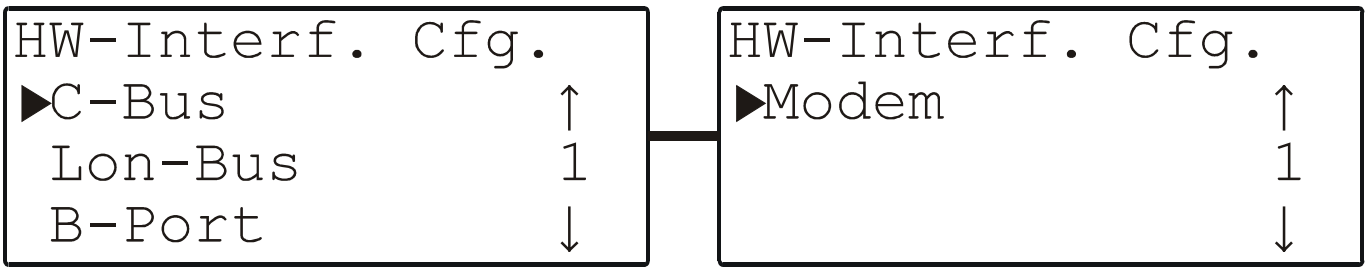

Fig. 48. Hardware-interface configuration screens

The contents of this listbox will depend upon the specific hardware interfaces which your controller features. It may be necessary to scroll downwards in order to display all of the items.

Table 5. Contents of listbox dependent upon hardware interfaces

	XD50-E	XD50-F	XD50-FC	XD50-FCS	XD50-FL	XD50-FCL
C-Bus	/	/	YES	YES	/	YES
Lon-Bus	/	/	/	/	YES	YES
B-Port	YES	YES	YES	YES	YES	YES
Modem	/	YES	YES	YES	YES	YES
M-bus	/	/	/	YES	/	/

C-Bus Configuration

Selecting "C-Bus" will cause a screen with a corresponding heading to appear (see Fig. 49), and in which you can edit the baud rate and controller number, as appropriate.

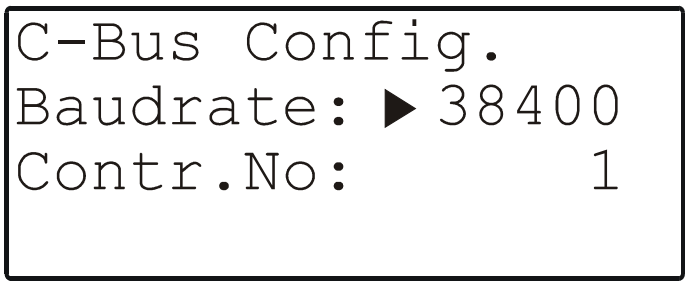

Fig. 49. C-bus configuration

NOTE: Changing the baud rate or the controller number requires a level-3 password.

NOTE: To provide compatibility with the PC-based XI584 operator and service software, this C-Bus screen may appear even for controllers with applications not equipped with a C-Bus connection.

NOTE: If no controller number is set or if the number shown is not reconfirmed, the controller will not go online on the C-Bus after start-up.

LON-Bus Configuration

Selecting "`Lon-Bus`" will cause a screen with a corresponding heading to appear (see Fig. 50), and which displays the unique ID number of the Excel 50 MMI's Neuron processor.

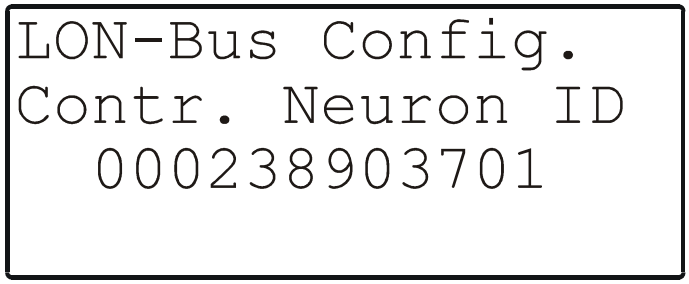

Fig. 50. LON-bus configuration

B-Port

Selecting "`B-Port`" will cause a screen with a corresponding heading to appear (see Fig. 51), and in which you can edit the baud rate, as appropriate.

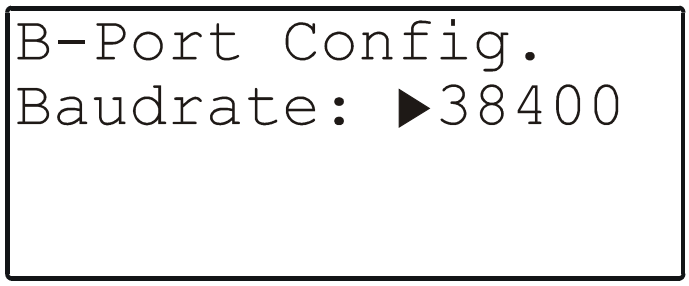

Fig. 51. B-port configuration

NOTE: Changing the baud rate requires a level-3 password.

Modem

Selecting "`Modem`" will cause a screen with a corresponding heading to appear (see Fig. 52).

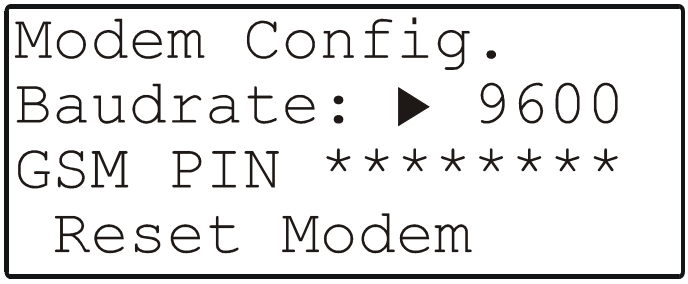

Fig. 52. Modem configuration

NOTE: Changing the baud rate or the GSM PIN or executing the modem reset requires a level-3 password.

Baud Rate
If you wish to set the baud rate for the modem/ISDN terminal adapter, select "`Baudrate`".

GSM Personal Identification Number (PIN)
If you wish to set the GSM Personal Identification Number (PIN), select "`GSM PIN`".

NOTE: The modem baud rate must be set to 9600 for GSM communication to work.

NOTE: The GSM PIN must be entered right-justified.

Resetting the Modem
If you wish to return modem to factory settings, select "`Reset Modem`".

NOTE: Resetting the modem will restore the factory defaults and erase any custom initialization.

NOTE: You must ensure first that the modem is connected. See section "Remote Communications" of the Excel 50 Controller Installation Instructions, EN1B-101, for more information.

M-Bus

NOTE: The entry "M-Bus" will appear only if your Excel 50 controller has been equipped with M-bus modules (FCS).

Selecting "`M-Bus`" ("M" = "meter bus") will cause a screen with a corresponding heading to appear (see left screen in Fig. 53) in which you can change the baud rate, if desired.

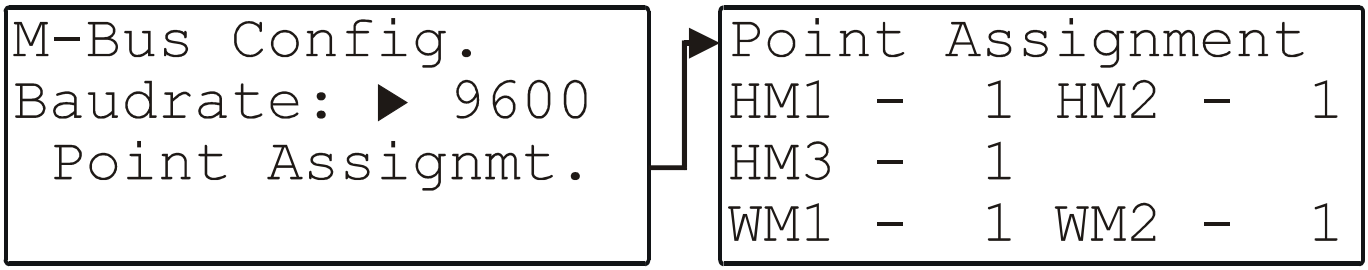

Fig. 53. M-Bus configuration

NOTE: Changing the baud rate requires a level-3 password.

If you select "`Point Assignmt.`", a corresponding screen will appear (see right screen in Fig. 53).

This screen displays the bus numbers for up to three heat meters and/or up to two water meters on the Meter Bus (up to max. 3 meters in total). A value of 0 or lower (the default is "`-1`") means that no device is connected. Move the cursor to the appropriate bus number field and confirm.

Use the PLUS or MINUS keys to change the value and confirm.

Flash EPROM

Selecting "`Flash EPROM.`" will cause a listbox with a corresponding heading to appear (see Fig. 54).

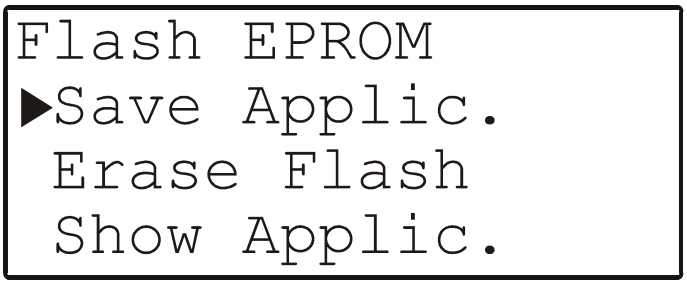

Fig. 54. Hardware-interface configuration screens

Regardless of your application or configuration, this listbox will always contain the same three items from which to choose.

- By selecting "`Save Applic.`" you can burn all data of the current application into the Flash EPROM.

- By selecting "`Erase Flash`", you can erase all data from the Flash EPROM.
- By selecting "`Show Applic.`", you can display saved applications and their respective burn dates.

Saving the Application

If "`Save Applic.`" is selected, the following screen will appear (see Fig. 55).

Fig. 55. Burning Flash

If, however, the Flash memory is full, a screen with a corresponding message (and also displaying the date and clock-time) will appear (see Fig. 56).

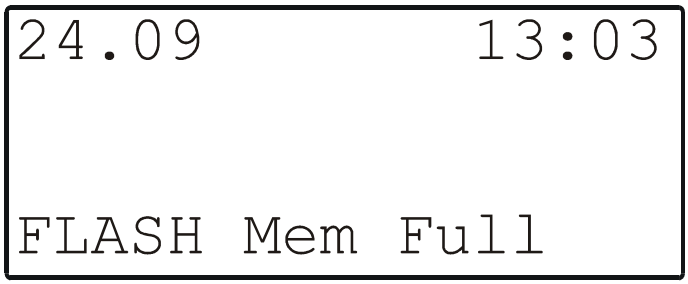

Fig. 56. Flash memory full

Erasing the Flash Memory

If "`Erase Flash`" is selected, the following screen will appear (see Fig. 57).

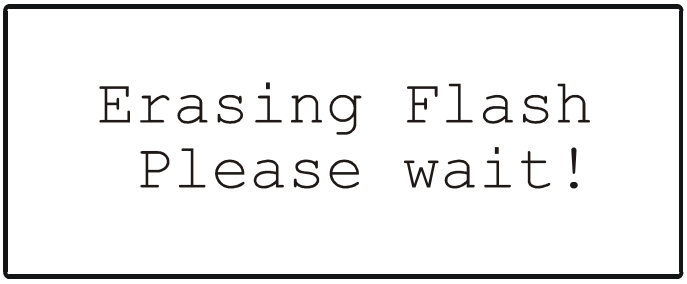

Fig. 57. Erasing the flash memory

Showing the Application

If "`Show Applic.`" is selected, the following screen will appear (see Fig. 58).

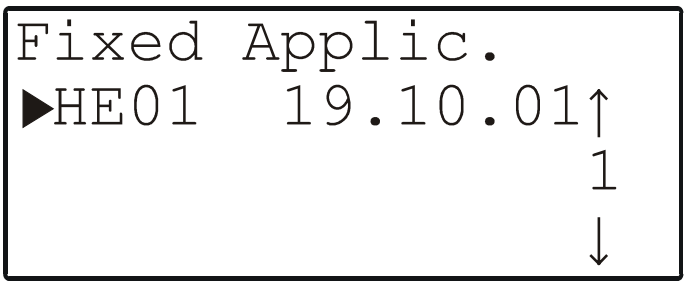

Fig. 58. Showing the application

Bus-Wide Access

The "Bus-wide Access" function uses the MMI of this controller to display or to make changes to other EXCEL 50 controllers without MMI which are connected to the same C-bus.

Selecting "`Buswide Access`" will cause a screen with a corresponding heading to appear (see Fig. 59).

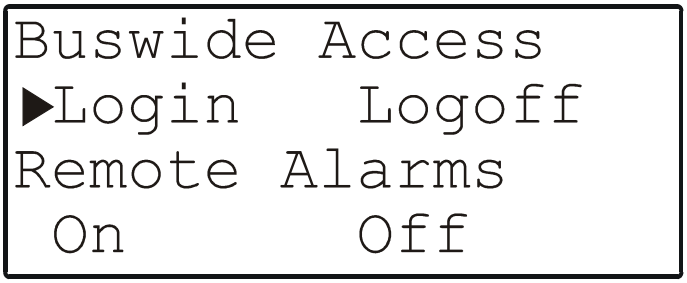

Fig. 59. Bus-wide access

Regardless of your application or configuration, this screen will always contain the same four entries.

Move the cursor to

- "Login" in order to log in to another controller on the same C-bus.
- "Logoff" in order to log off from the remote controller to which you are logged in at the moment (appears only when accessing a slave controller from a remote controller).
- "On" to enable the logging of alarms coming from other controllers on the bus (these alarms can then be displayed after pressing the ALARMS fast-access key while in the "Bus-wide Alarms" menu).
- "Off" to disable the logging of alarms coming from other controllers on the bus.

and confirm.

Remote Login

If you select "Login", a screen resembling Fig. 60 will appear.

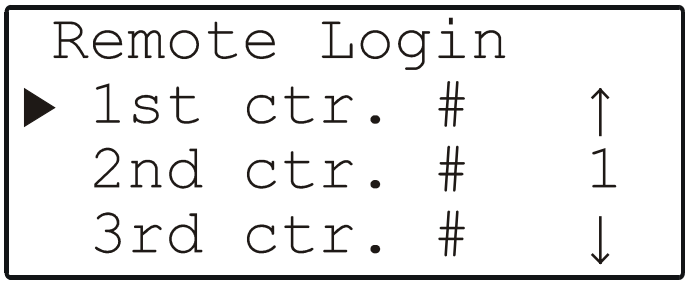

Fig. 60. Remote login

Depending upon the number of different controllers registered in your network (on the C-bus), the resultant listbox will contain the names of a variable number of controllers.

Move the cursor to the controller you want to log into and confirm.

NOTE: From now on, all visible screens are the screens of the remote controller. The first screen of the remote controller will be the start screen. You can now access all screens of the remote controller. Use the "Bus-wide Access" function via the SYSTEM TOPICS fast-access key to return to the screens of your own controller. Use the LOGOFF function or select your own controller in the controller list of the LOGIN function. If you do not press a key for 10 min, you will also be logged off. You will return to the controller list screen of the LOGIN function on your own controller. Logging in to a controller that uses an XI581AH/582AH operator interface

results in only part of the information from that controller being displayed on the Excel 50 screen (due to its smaller screen size).

Remote Logoff
If "Logoff" is selected, you will be logged off from the remote controller and return to the controller list screen of the LOGIN function on your own controller.

Remote Alarms On/Off
If "On" or "Off" has been selected, alarms from remote controllers will be displayed or suppressed. The screen will remain the same and no changes are visible.

DDC Times

Move the cursor to the "DDC Times" item and confirm.

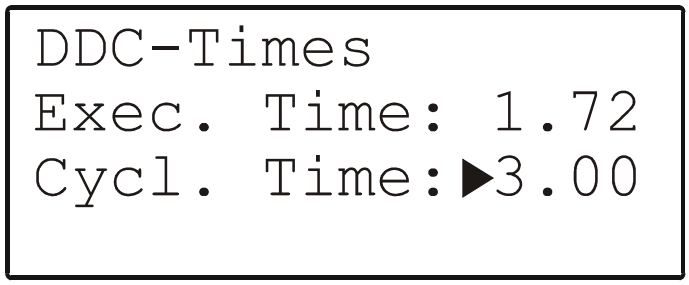

Fig. 61. DDC times

This screen displays the execution time and RACL cycle time in seconds. The cycle time can be changed to optimize the system performance.

NOTE: Changing the cycle time requires a level-3 password. Move the cursor to the "Cycl. Time" field and confirm.

THE ALARMS FAST-ACCESS KEY

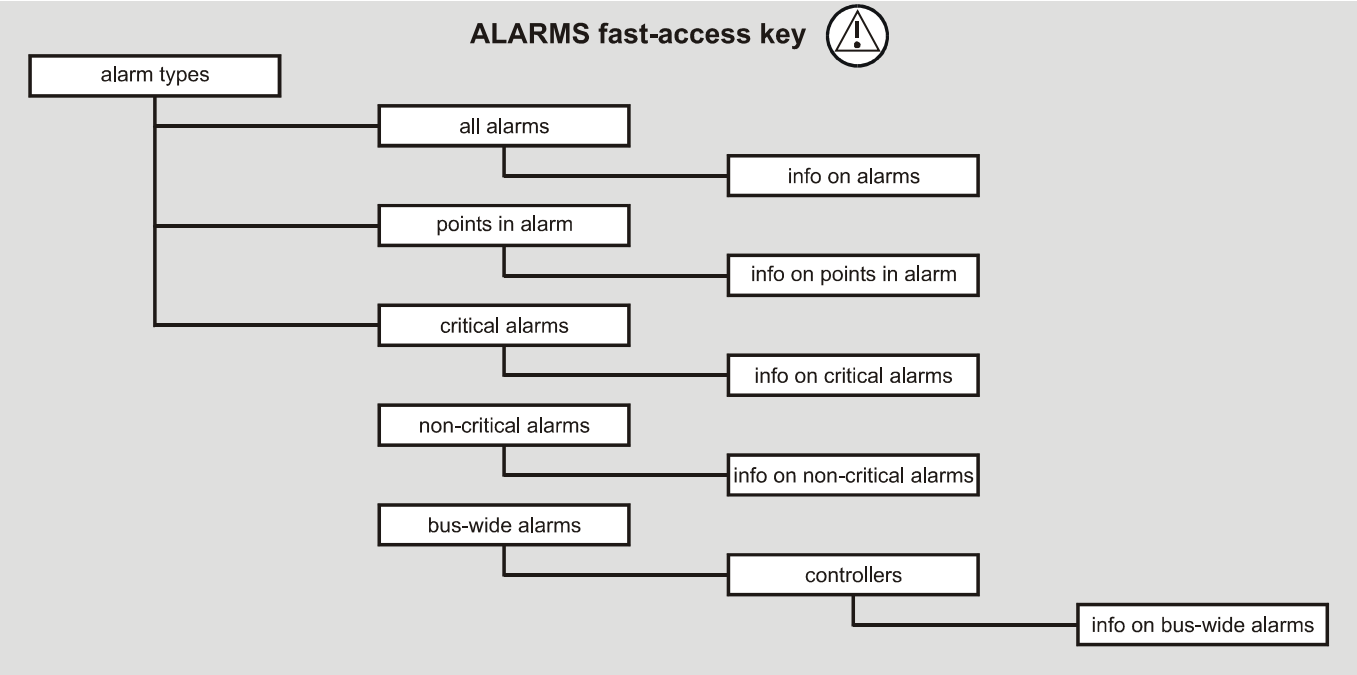

Fig. 62. The ALARMS fast-access key

Pressing the ALARMS fast-access key displays the main alarm menu screen to enable selection of the following:

- alarm buffer
- points in alarm
- critical alarms
- non-critical alarms.

Alarm Buffer

The last 99 alarms are stored in the alarm buffer. Typical alarm information includes:

- Date and time the alarm occurred
- Name of the data-point in alarm
- Value/state of the data-point in alarm
- Alarm text, e.g. MIN1 alarm.

When the alarm memory capacity is exceeded, the first alarm is overwritten. Alarms are organized on a first in, first out basis. The contents of the alarm buffer can be displayed on the Excel 50 MMI.

Point in Alarm

All data-points currently in an alarm condition, i.e. the alarm limit for an analog point or the alarm state for a digital point has been reached, can be displayed on the Excel 50 MMI. When selecting this option, the data-point's name and associated alarm text will be displayed.

Critical / Non-Critical Alarms

The following attributes can generate alarms and will write them into the alarm buffer as well as sending them to the PC central via the C-Bus.

Alarm Attributes

With the "Min Limit", "Max Limit", "Totalizer", and "Alarm State" attributes, you can classify alarms as either critical or non-critical.

NOTE: The "`Operating Mode`" attribute always generates a critical alarm.

System Alarms Description

Operating malfunctions arising within a controller (e.g. power failure) or during communication with another Excel 5000 device are displayed on the Excel 50 MMI.

NOTE: System alarms are always critical alarms.

Min. / Max. Limit Monitoring

Two maximum limits ("`Max Lim1`" and "`Max Lim2`") and two minimum limits ("`Min Lim1`" and "`Min Lim2`") can be independently set for physical and pseudo analog inputs.

The limit values can be changed using the operator sequence. Each time a limit value is reached, irrespective of direction, an alarm is generated.

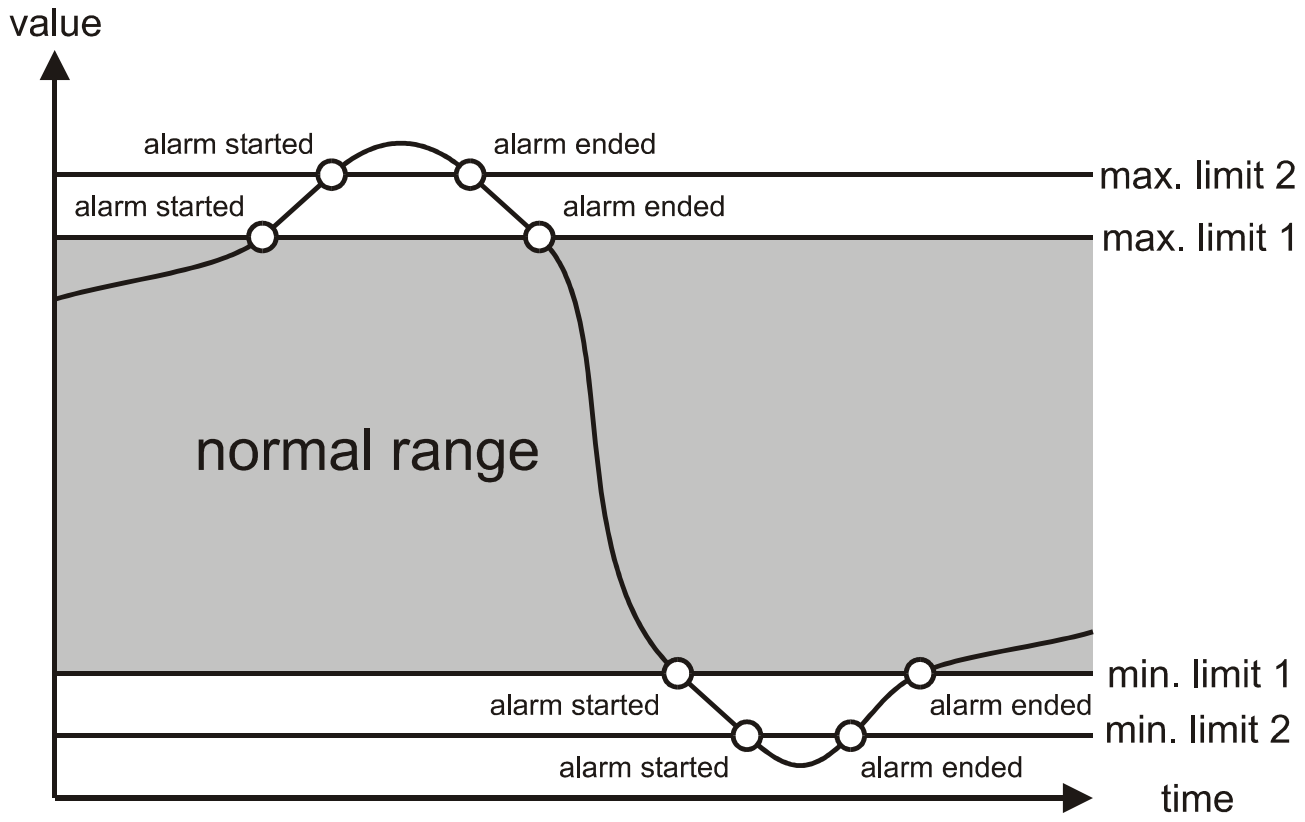

Fig. 63. Max./min. limit monitoring

The following four limit values are available:

- minimum limit 2
- minimum limit 1
- maximum limit 1
- maximum limit 2

Press the ALARMS fast-access key to display alarm information on alarm history, points currently in an alarm condition, critical alarms, non-critical alarms, and bus-wide alarms.

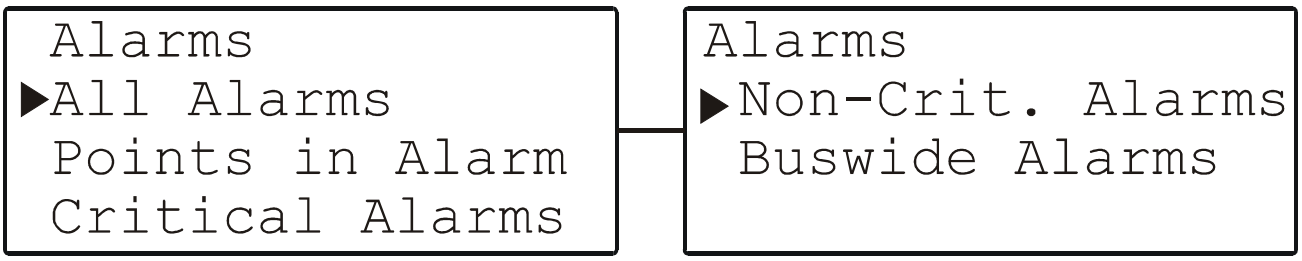

Fig. 64. Sequence of screens in the "alarms" procedure

You can proceed to the second screen of the ALARMS procedure using the RIGHT and LEFT ARROW keys.

Move the cursor to the desired item, e.g. "Point in alarm", and confirm. A screen resembling the left one shown in Fig. 65 will then appear.

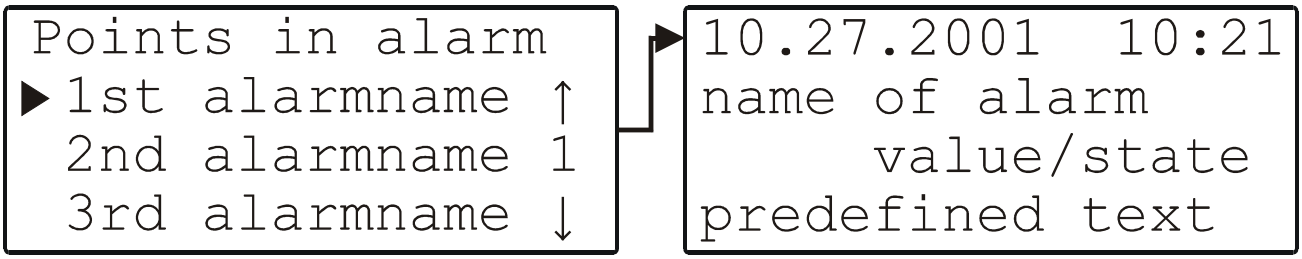

Fig. 65. Screen displaying all points in alarm

This screen displays all the points currently in alarm in the list box. To access more information about a specific alarm, use the ARROW keys to move the cursor to the appropriate alarm name and confirm. The resultant screen will have the appearance of the one shown to the right in Fig. 65.

Alarm information (comprising the date, time, alarm name, value/state and alarm reason) is displayed. Press CANCEL to return to the previous screen.

NOTE: The same operating method as described for "Point in Alarm" applies to the "All Alarms", "Critical Alarms" and "Non-Crit. Alarms".

If the item "Bus-wide alarms" has been chosen from the alarm menu, a screen resembling Fig. 66 will appear ("#" represents a number from 1 through 30).

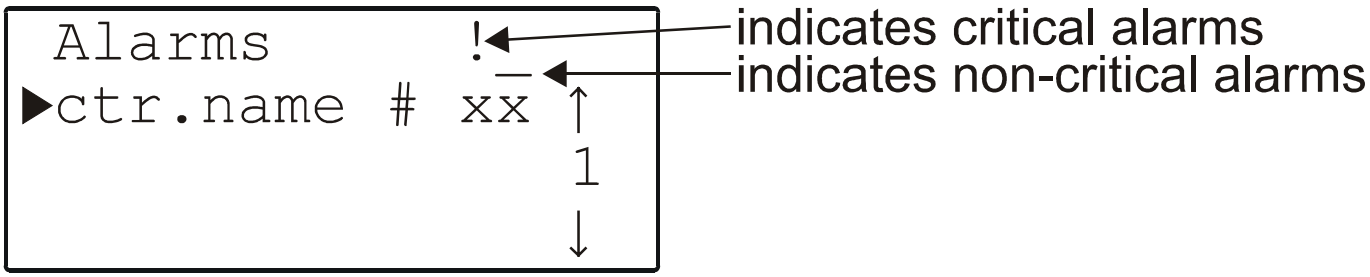

Fig. 66. Buswide alarms

This screen shows a list of all controllers connected to the bus. Move the cursor to the appropriate controller and confirm. A list box with all alarms in the alarm

buffer of the specified controller will be displayed in a screen resembling the left screen shown in Fig. 65. Move to the appropriate alarm and confirm.

POWERING UP / RESETTING THE CONTROLLER

After powering up the controller or following a RESET (see section "Resetting" "Basic Function Keys" on page 3), the following series of screens (the so-called "start-up sequence") appears (see Fig. 67).

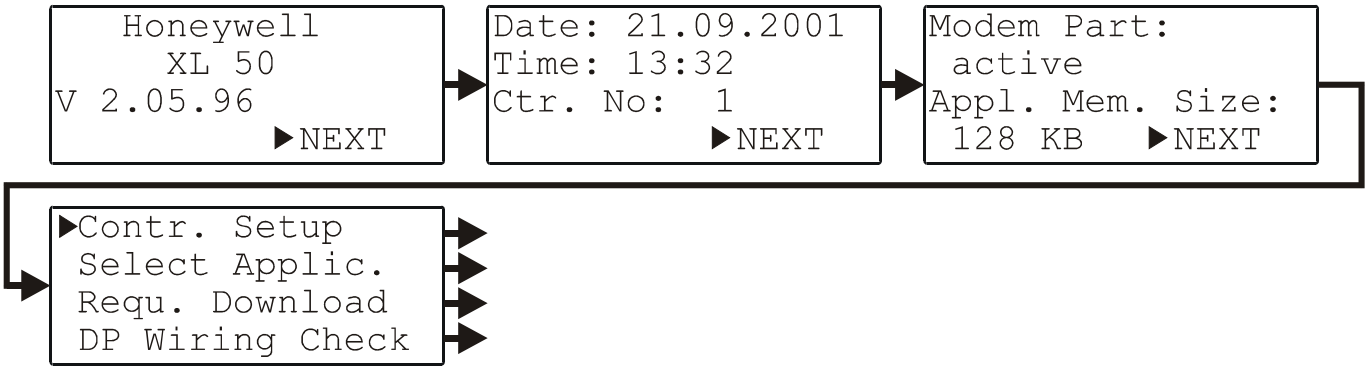

Fig. 67. The start-up sequence

NOTE: The screens of the start-up sequence are part of the operating system and therefore always displayed in English.

During the first three screens of the start-up sequence, it is possible to move in only one direction (i.e. the cursor is positioned at "NEXT" by default).

The first screen of the start-up sequence presents only non-editable information: the company name, the model name, and the firmware version. You may proceed to the next screen by pressing the ENTER key.

The second screen presents the date (format: DD. MM. YYYY), clock-time (format: HH:MM), and controller number fields. You can edit any or all of these fields using the basic function keys

NOTE: If no controller number is set or if the number shown is not reconfirmed, the controller will not go online on the C-Bus after start-up.

You may proceed to the next screen by pressing the ENTER key.

The third screen provides information about whether modem communication is enabled and about the application's memory size. Enabling modem communication and changing the value for application's memory size are performed in a later screen.

You may proceed to the next screen by pressing the ENTER key.

The fourth screen contains editable fields for configuring the controller-specific hardware interfaces ("Contr. Setup"), choosing the application manually ("Select Applic."), downloading an application from either the PC-based XI584 operator and service software or from the XBS Central A ("Requ. Download"), and setting up the test mode with default data-point names ("DP Wiring Check"). Move your cursor to the desired entry and confirm by pressing the ENTER key. Depending upon your selection, you will proceed to one of the series of screens described in the respective section below.

Hardware Interface Configuration

Selecting and confirming "Contr. Setup" will cause a listbox headed "HW-Interf. Cfg." to appear (see Fig. 68).

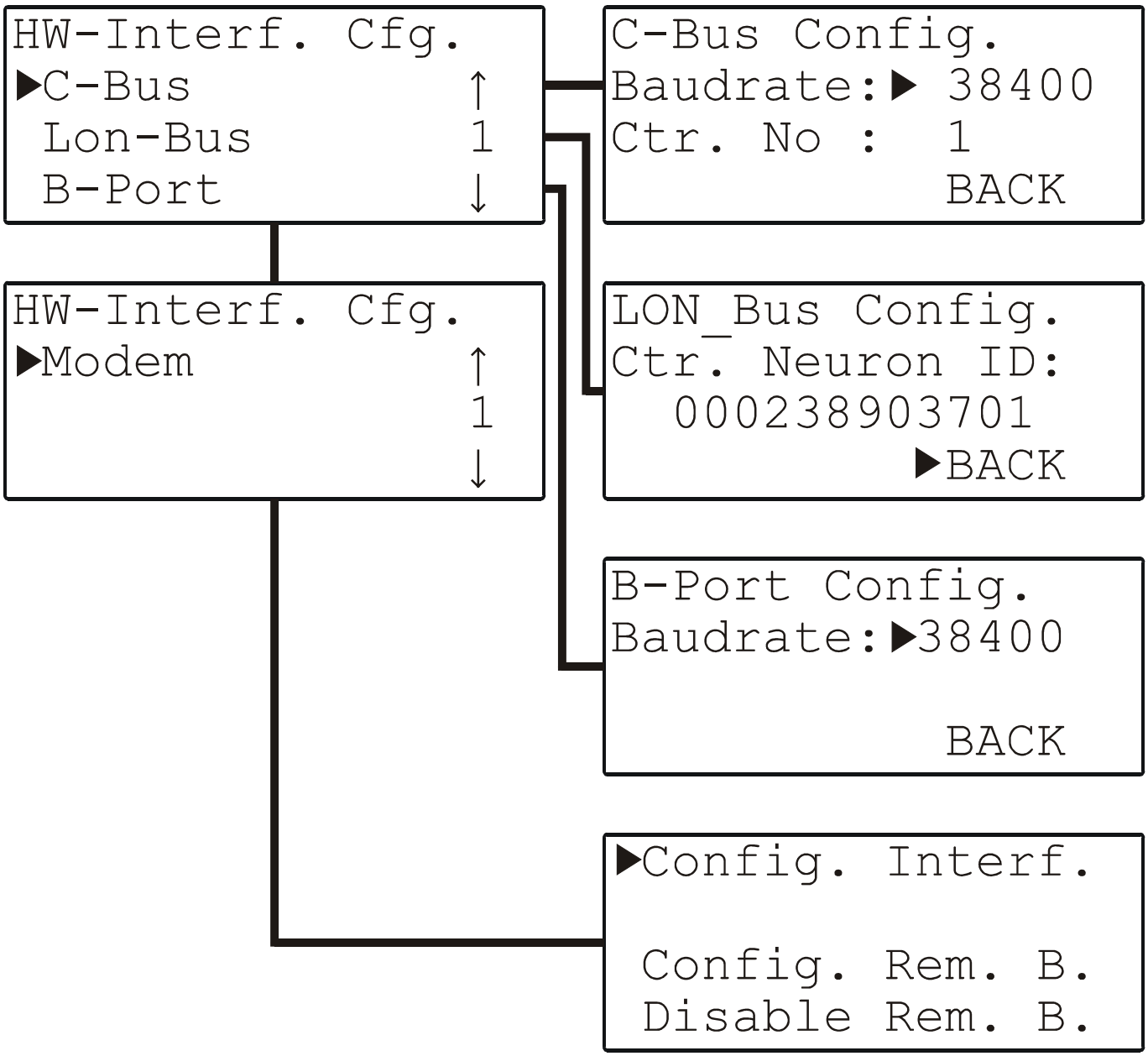

Fig. 68. Hardware interface configuration

To view/configure the fourth entry ("`Modem`"), you will have to scroll downwards.

See also section "Hardware Interface Configuration" on page 34.

Choosing an Application Manually

Selecting and confirming "`Select Applic.`" will cause a listbox headed "`Choose Applic.`" to appear (see Fig. 69).

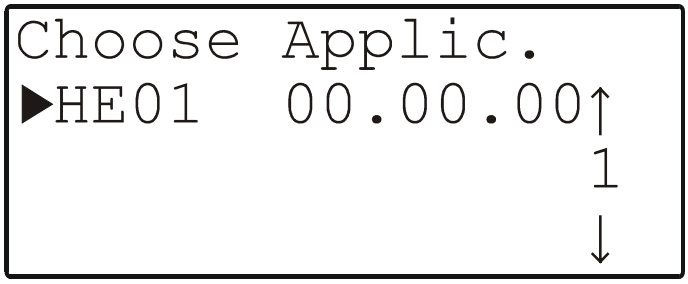

Fig. 69. Choosing an application manually

Move the cursor to the desired application and confirm.

The initialization screen of the chosen application will appear. It displays information about the versions of the controller and the application.

Bus numbers are appended automatically, except in the case of remote points. In the case of remote points, the remote controller number must be entered in through the data-points sequence.

NOTE: The controller's number is appended to the data-point's name (see also section "Appending the Controller's Number to the Data-Points' Names") in order to identify the controller to which the it belongs.

In the following sequence of screens (see Fig. 70), the codes of the configurable application can be changed. The application codes can be generated with the "LIZARD-Excel 50 Application Selector".

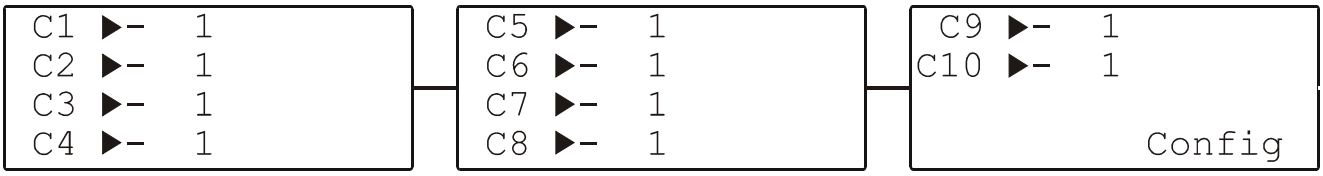

Fig. 70. Sequence of configuration screen

NOTE: If the "LIZARD-Excel 50 Application Selector" is not available, please contact your local Honeywell branch for support.

In the appropriate screen, move the cursor to the appropriate code and change its value using the PLUS and MINUS keys.

When you are finished, go to the third screen, move the cursor to the "CONFIG" field, and confirm.

If the codes entered in the screens are allowed, the default screen of normal operation will appear:

If one or more codes entered are not allowed, the initialization screen will appear again. Change the screens by using the LEFT and RIGHT ARROW keys until you have returned to the configuration screen. Codes which are not allowed have the value "-1" instead of the previously entered code. Change the codes until all codes are correct.

You will now come to the default screen of normal operation (see Fig. 4 on page 5).

Downloading an Application

After resetting (see section "Resetting" on page 3), the start-up sequence will appear (see Fig. 67), in the fourth screen of which you can request a download ("`Requ. Download`"), after which the following screen will appear (see Fig. 71).

Fig. 71. Downloading an application

You may then proceed as follows

1. Establish the physical connection (e.g. a null-modem cable) between the XL50 B-Port and your PC.
2. Launch `lizard.exe` on your PC.
3. Open one of the applications (e.g. HE01V2.00 (XD50 F, FC, FL, FCL & FCS) present in the corresponding sub-folder. A list of equipment units (not to be confused with "Plant Components") will then appear.
4. Select the desired configuration (i.e. assemblage of equipment units).
5. Under "Options", check the COM port and baud rate. The selected baud rate must agree with the baud rate setting of the XL50 MMI. For verification purposes, the configuration parameters will then be again displayed.

6. In the XL50 MMI LCD display, a screen (see Fig. 4 on page 5) stating the date and clocktime will appear. You have now completed the downloading procedure.

NOTE: The fastest download is achieved by setting both the XL50 B-Port and the Lizard PC-COMPORT baud rates to 38400 baud.

Setting Up the Test Mode with Default Data-Point Names

Selecting and confirming "`DP Wiring Check`" will cause the following screen to appear (see Fig. 72).

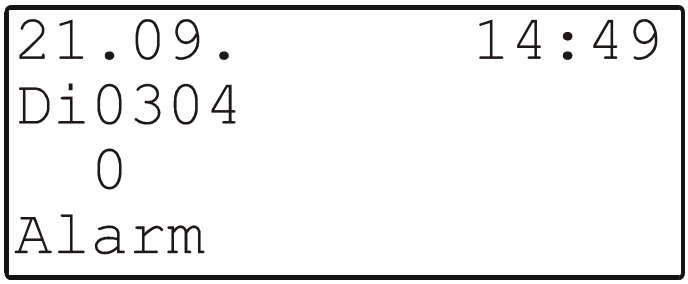

Fig. 72. Setting up the test mode with default data-point names

The resultant default data-point's names are generated according to the following pattern:

AI0101: Analog input, board 1, input 1
AO0201: Analog output, board 2, output 1
DI0301: Digital input, board 3, input 1
DO0401: Digital output, board 4, output 1

NOTE: The board numbers shown above are internal references and are not relevant to the User. In Excel 50 Controllers, the numbers are fixed for the I/O type, i.e. analog inputs are always AI01, digital inputs are always DI03, etc.

After generating the default data-point's names, the alarm displayed in Fig. 72 first needs to be cancelled. This is done, the following screen will appear:

Fig. 73 Canceling the alarm

Move the cursor to

- "Default Points" to display I/O points for checking values and manually setting outputs for testing.
- "Alarm History" to display current alarms. This feature allows the system to be checked out by a single person opening and closing inputs and then later reading the alarm buffer to see if they were detected by the controller.

and confirm using the ENTER key.

If "`Default Points`" has been selected, a listbox similar to Fig. 74 will be displayed showing all default data-point names and their current values.

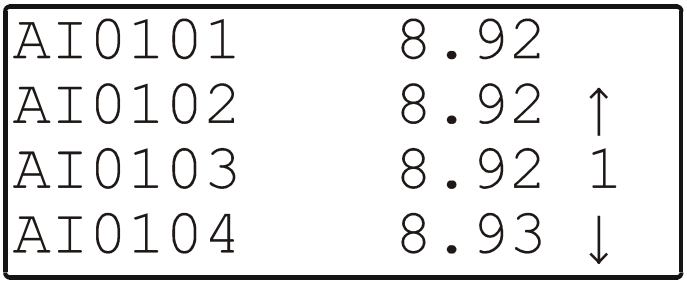

Fig. 74. Default data-point names

To manually set the state/value of output data-points, use the ARROW keys to move the cursor to the appropriate output data-point from the list box and confirm.

In the case of e.g. analog output data-points, a screen similar to Fig. 75 will be displayed.

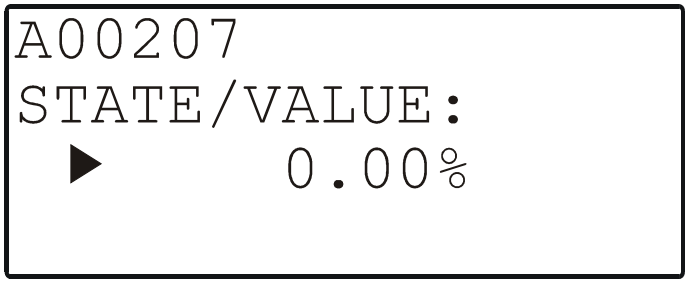

Fig. 75. Manually setting the state/value of analog output data-points

Confirm the displayed value with ENTER, or change the value using the PLUS or MINUS keys and confirm. In the case of e.g. digital output data-points, a screen similar to Fig. 76 will be displayed.

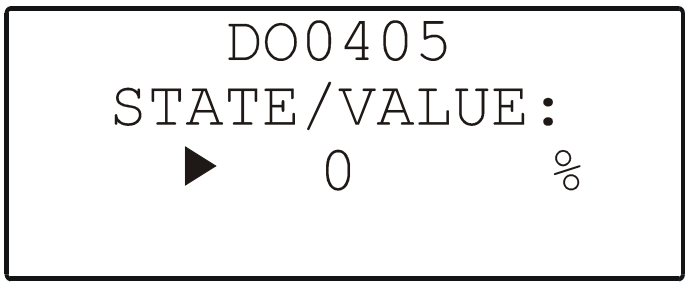

Fig. 76. Manually setting the state/value of digital output data-points

Confirm the displayed value with ENTER, or change the state/value using the PLUS or MINUS keys and confirm.

If "Alarm History" has been selected, a listbox similar to the one shown in Fig. 77 will be displayed showing all points in alarm as well as any system alarms (max. 100 entries):

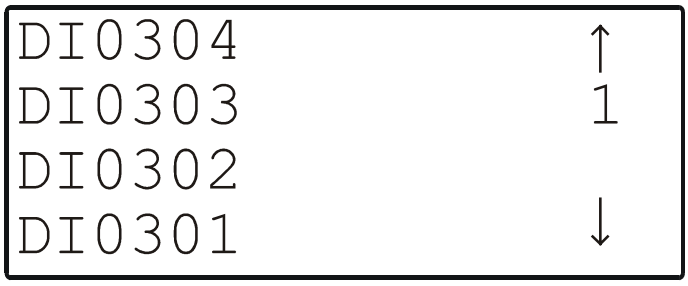

Fig. 77. Alarm history

NOTE: Alarms are generated for changes of state/value on inputs, which allows shorting and opening the inputs at the switches and/or sensors and then checking the alarm buffer to verify the wiring.

To display an alarm, use the ARROW keys to move the cursor to the default data-point's name from the list box and confirm. A screen similar to Fig. 78 will appear.

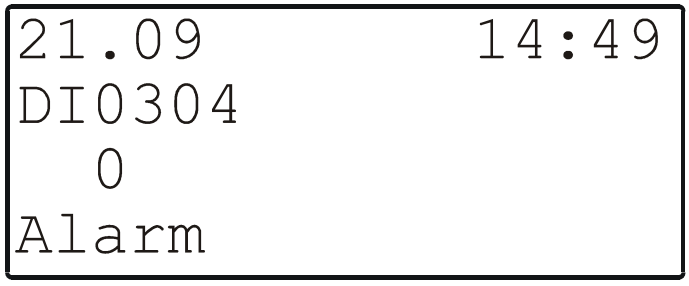

Fig. 78. Displaying an alarm

If, by manipulating the hardware, you change the state to "1", "return to normal" will be displayed.

NOTE: Reset the controller after using the test options to clear the alarm buffer.

APPENDIX 1: DATA-POINT ATTRIBUTES

The information pertaining to a particular data-point is referred to as its attributes.

In the following sections, the data-points available on the Excel 50 MMI are presented. Depending upon the data-point's type (analog input, digital output, etc.), it can have various different attributes. The meanings of these attributes are explained most extensively in section "Analog Input Data-Point Attributes".

Analog Input Data-Point Attributes

See also section "Types of Physical Data-Points" on page 25 for a description of analog input data-points. Their editable and non-editable attributes are displayed in the following series of screens:

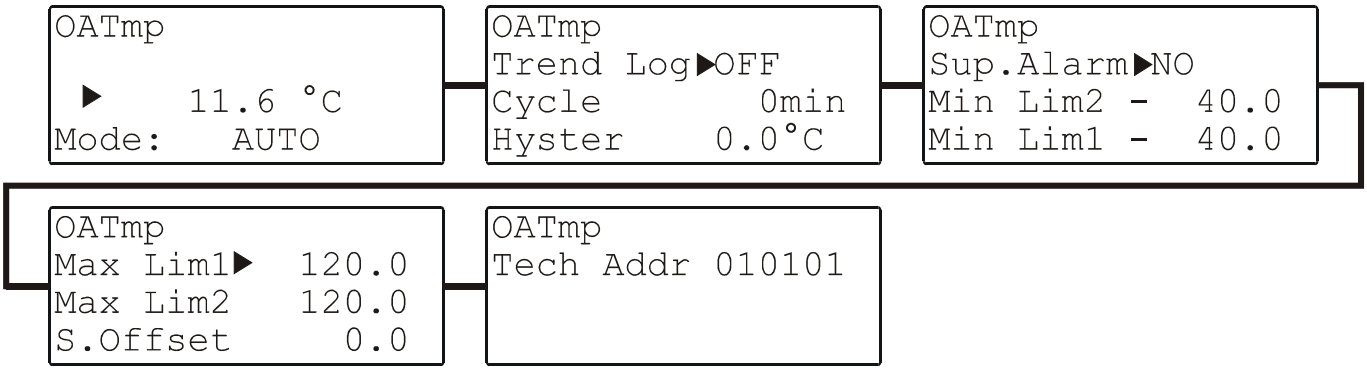

Fig. 79. Analog input data-point attributes (as exemplified by `OATemp`)

In the first screen, the data-point's name (which is non-editable) is displayed. You can edit the switch-point value/state (the engineering unit is non-editable) and/or change the operating mode field from "`AUTO`" to "`MANUAL`" (and vice-versa). See also section "The 'Operating Mode' Attribute".

NOTE: If the operating mode is changed, an alarm screen with the message "`Manual operation`" or "`Auto operation`" appears. Confirm the alarm with CANCEL. You may now proceed to the next screen.

In the second screen, you can enable/disable trend logging for this data-point by changing the attribute "`Trend Log`" from "`ON`" to "`OFF`" (and vice-versa). You can also edit the values for "`Cycle`" and/or "`Hyster`".

NOTE: If "`Cycle`" is set to anything other than 0, time-based trending is enabled. If "`Cycle`" is set to 0, then value-hysteresis trending is enabled using the absolute value specified for "`Hyster`".

In the third screen, the data-point's "Sup.Alarm" (suppress alarm) attribute can be changed from "YES" to "NO" and vice-versa. The "Sup.Alarm" attribute allows the user to choose which point alarm will be generated and which one not. If the "Sup.Alarm" attribute is set to "YES", no alarm will be generated, even if the alarm condition of this data-point occurs.

In the third screen, you can also edit the value of the "Min Lim2" and/or "Min Lim1" attributes. See also section "Min. / Max. Limit Monitoring" on page 44.

In the fourth screen, you can edit the values of the "Max Lim1", "Max Lim2", and "S.Offset" (sensor offset) attributes. See also section "Min. / Max. Limit Monitoring" on page 44.

The fifth screen displays the data-point's technical address (which is non-editable). The technical address is a six-digit number. The first two digits stand for the controller number. The next two digits stand for the board number. The last two digits stand for the physical point address.

Analog Output Data-Point Attributes

See also section "Types of Physical Data-Points" on page 25 for a description of analog output data-points. Their editable and non-editable attributes are displayed in the following series of screens:

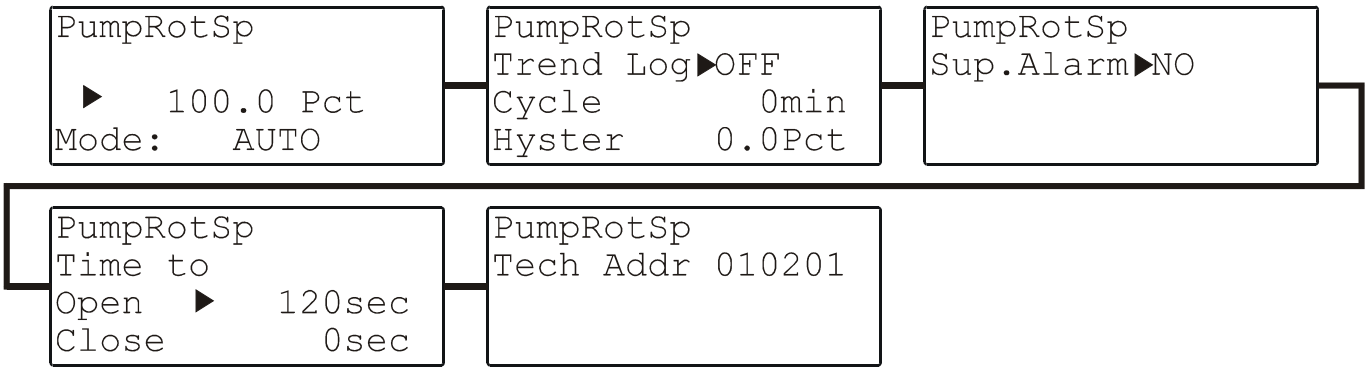

Fig. 80. Analog output data-point attributes (as exemplified by PumpRotSp)

"time to open" / "time to close": This attribute pertains only to analog output data-points and shows - for example - the time an actuator needs to open and close a valve.

See also the previous section for information on previously-described attributes.

Digital Input Data-Point Attributes

See also section "Types of Physical Data-Points" on page 25 for a description of digital input data-points. Their editable and non-editable attributes are displayed in the following series of screens:

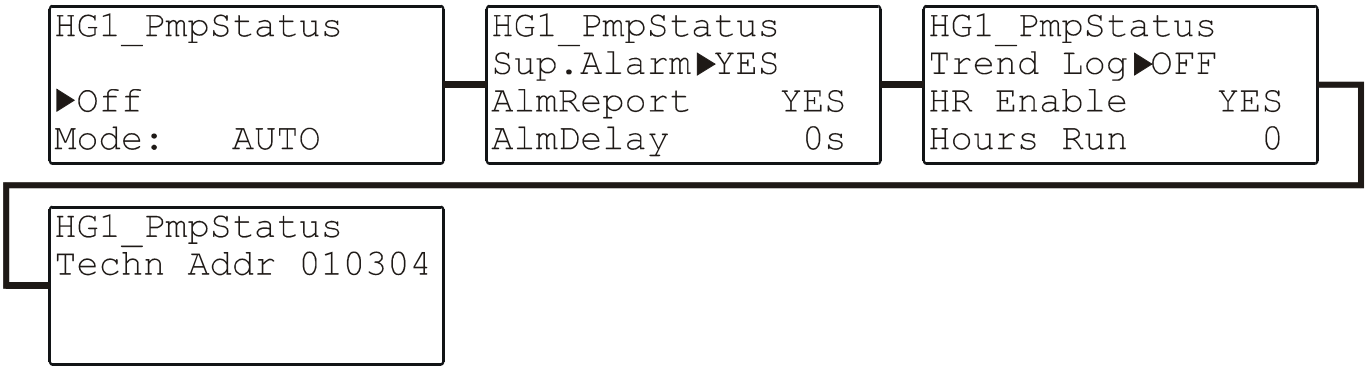

Fig. 81. Digital input data-point attributes (as exemplified by `HG1_PmpState`)

The "`AlmReport`" (alarm reporting) attribute: Setting this attribute to "`YES`" will cause the state of the digital input data-point to be checked for a change; in the event of a change, an alarm is generated.
The "`AlmDelay`" (alarm delay) attribute: Using this attribute, the delay (in seconds) until an alarm is generated can be set.

"hours run" enable/disables measuring of the runtime of the connected actuator (e.g. a pump).
hours run *(not editable)*

See also the previous sections for information on previously-described attributes.

Digital Output Data-Point Attributes

See also section "Types of Physical Data-Points" on page 25 for a description of digital output data-points. Their editable and non-editable attributes are displayed in the following series of screens:

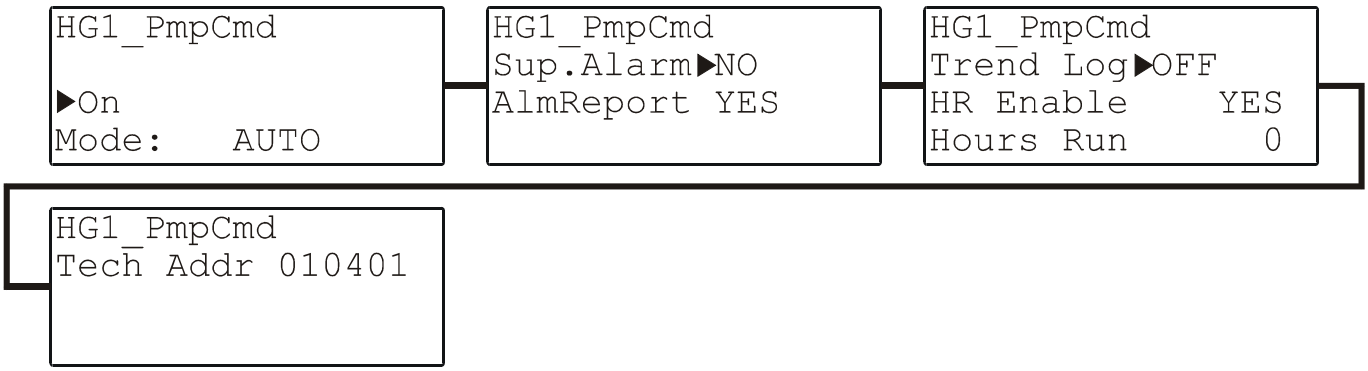

Fig. 82. Digital output data-point attributes (as exemplified by `HG1_PmpCmd`)

See also the previous sections for information on previously-described attributes.

Pseudo Analog Data-Point Attributes

See also section "Types of Pseudo Data-Points" on page 26 for a description of pseudo analog data-points. Their editable and non-editable attributes are displayed in the following series of screens:

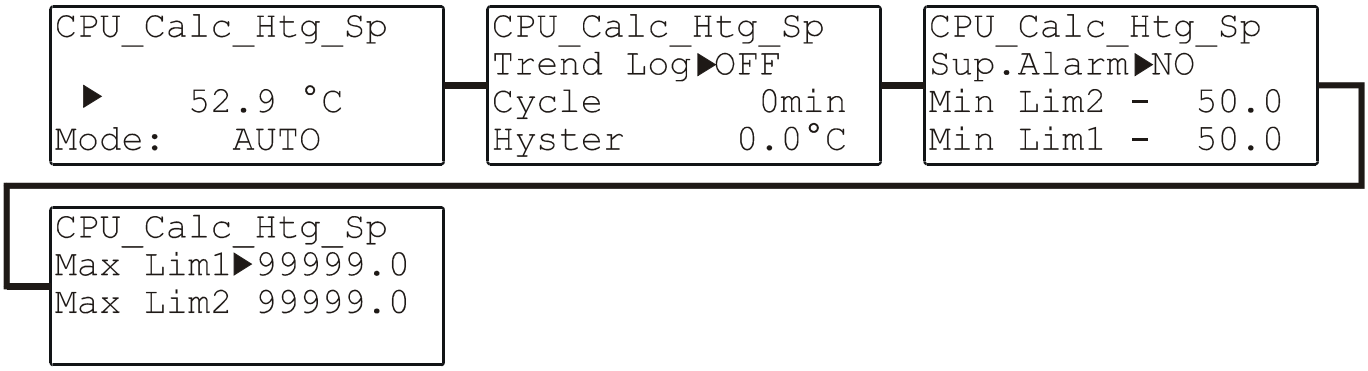

Fig. 83. Pseudo analog output data-point attributes (as exemplified by `CPU_Calc_Htg_Sp`)

Pseudo Digital Data-Point Attributes

See also section "Types of Pseudo Data-Points" on page 26 for a description of pseudo digital data-points. Their editable and non-editable attributes are displayed in the following series of screens:

Fig. 84. Pseudo digital data-point attributes (as exemplified by `EXECUTING_STOP`)

See also the previous sections for information on previously-described attributes.

Remote Analog Data-Point Attributes

See also section "Types of Remote Data-Points" on page 26 for a description of remote analog data-points. Their editable and non-editable attributes are displayed in the following series of screens:

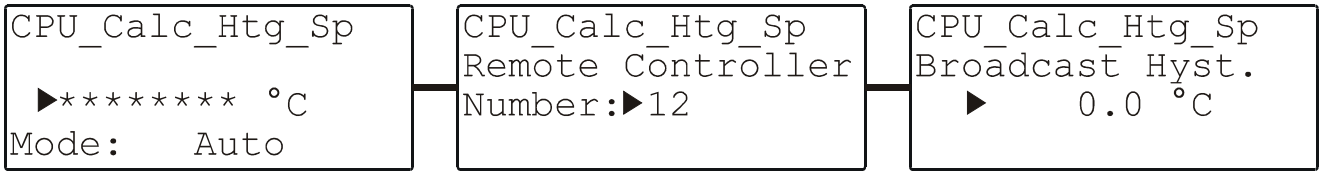

Fig. 85. Remote analog data-point attributes (as exemplified by `CPU_Calc_Htg_Sp`)

The second screen shows the controller number of the remote point. Remote points always receive their values from pseudo-analog points originating in source controllers. The remote point and pseudo-analog point must have the same name. During the start-up sequence, this controller number must be set to the value of the source controller's number; otherwise, no communication will occur.

The "`Broadcast Hyst`." (broadcast hysteresis) attribute is similar to a trend hysteresis. The value is broadcast if the given hysteresis (absolute value) is exceeded.

See also the previous sections for information on previously-described attributes.

Remote Digital Data-Point Attributes

See also section "Types of Remote Data-Points" on page 26 for a description of remote digital data-points. Their editable and non-editable attributes are displayed in the following series of screens:

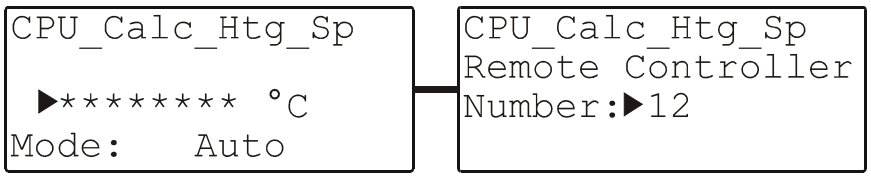

Fig. 86. Remote digital data-point attributes (as exemplified by `CPU_Calc_Htg_Sp`)

Totalizer Data-Point Attributes

See also section "Types of Physical Data-Points" on page 25 for a description of totalizer data-points. Their editable and non-editable attributes are displayed in the following series of screens.

If set to "MANUAL", totalizer points will be automatically set back to the "AUTO" mode insofar as accurate pulse counting would not otherwise be possible.

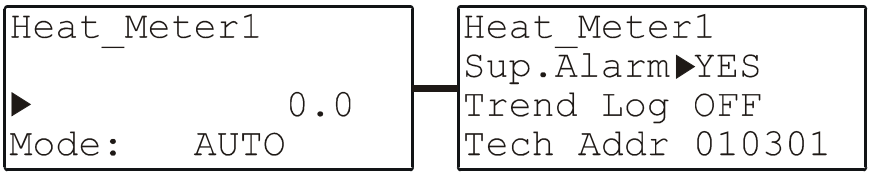

Fig. 87. Totalizer data-point attributes (as exemplified by `Heat_Meter1`)

See also the previous sections for information on previously-described attributes.

M-Bus Data-Point Attributes

An additional basic group of data-points called "M-bus points" will appear only if your Excel 50 MMI has been equipped for M-bus modules (FCS).

See also Lizard documentation for a description of M-bus data-points. Their editable and non-editable attributes are displayed in the following series of screens:

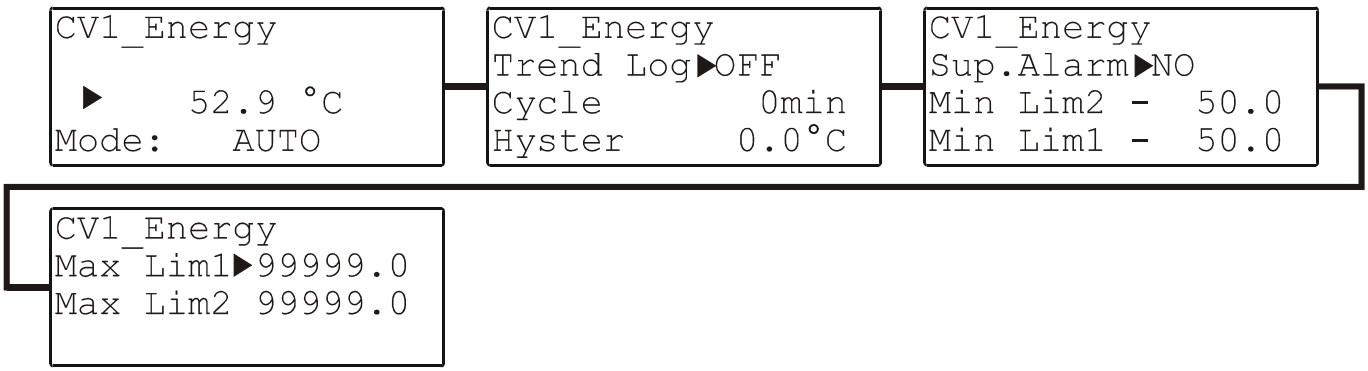

Fig. 88. M-bus data-point attributes (as exemplified by `CV1_Energy`)

Individual Data-Point Attributes

Data-Point Name

The data-point's name is just one of its attributes.

The name of each data-point (physical and pseudo) can be displayed on the Excel 50 MMI. However, access to **change** physical and pseudo data-points depends on the operator's access level.

Appending the Controller's Number to the Data-Points' Names

Remote data-points (also known as global data-points) are data-points used by more than one controller operating on the same C-bus.

When more than one controller with the same application program exists on the C-bus, the controller's number must be appended to the data-point's name. This must be done in order to make it unique (likewise, the controller's number must also be appended to the controller's name in order to make it unique).

Bus numbers are appended automatically, except in the case of remote points. In the case of remote points, the remote controller number must be entered in through the data-points sequence.

The controller's number will then be automatically appended to the names of all data-points.

NOTE: The controller number is displayed only on the PC central and not on the Excel 50 MMI.

The 'Operating Mode' Attribute

The "Operating Mode" attribute is an attribute of some data-points. This attribute enables the user to switch between the manual and automatic operation modes. Each change from the automatic operation mode to manual operation mode and back again generates a critical alarm.

Automatic Operation Mode: In the case of automatic operation, the Excel 50 MMI normally processes the values received from the inputs, e.g. from temperature sensors, while the state of outputs normally shown by the user / time program is adopted, e.g. "Heating circuit pump off". The feedback loop of the control system is closed. When the controller is in the automatic operation mode, the value or the current state being processed by the application program is contained in the "value" attribute. In the case of an analog input, for example, the

"value" attribute is the current room temperature. In the case of a pump switched by the digital output, for example, the "value" attribute is the current state (e.g. "ON").

Manual Operation Mode: During manual operation, the controller uses the manual values, e. g. "Flow temperature set-point = 60 °C". Outputs adopt the preselected condition, e. g. "Heating circuit pump on". The feedback loop of the control system is interrupted. When the controller is in the manual operation mode, the data specified manually is written into the "manual value" attribute, processed in the controller, and passed on to an output. The user can, of course, recall the measured value coming from the "value" attribute, but this has no effect on the application.

Optimizing a Switch-Point

The optimization function is used to optimize a switch-point. It has two states: "ON" and "OFF".

Optimization compensates the time an environment needs to reach a desired condition (temperature, humidity, etc.) by advancing the switch-point of the corresponding device / actuator so that it starts at an earlier time.

NOTE: The optimization can be set to "ON" only if the given data-point is suitable for optimization.

Example: If the optimization is set to "ON", a heating plant is switched on early so that a particular room will be at the required switch-point level by a particular time.

Programmed switch-point:
6:00 to 20 °C

Real switch-point:
4:52 to heating ON

The difference between the programmed and the real switch-point is the estimated time a room needs to warm up under the current conditions.

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